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THE RELATION
OF THE
MODERN MUNICIPALITY
TO THE
GAS SUPPLY.

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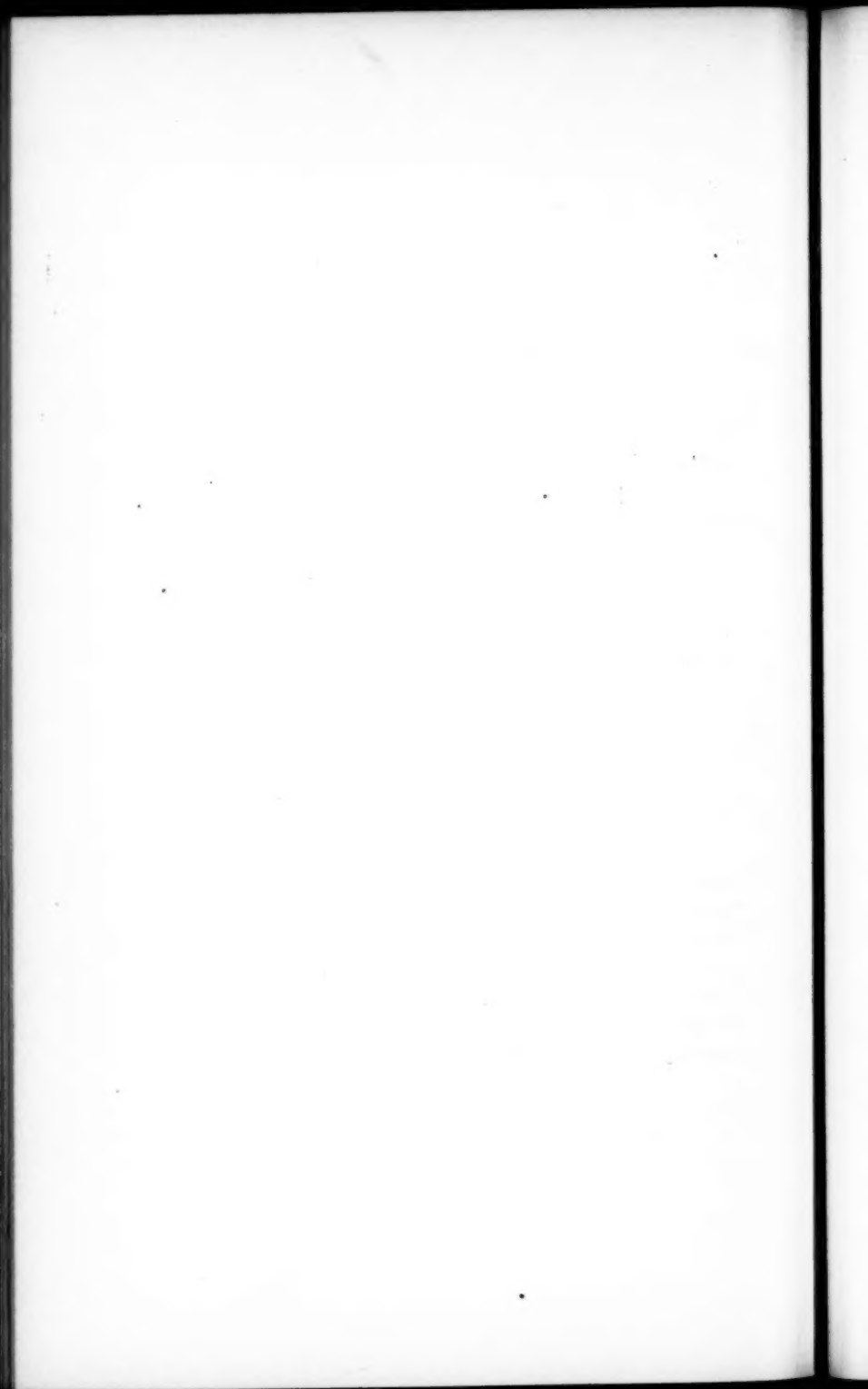
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The Relation of the Modern Municipality to the Gas Supply.

One of the most interesting phenomena connected with our modern political development in general, is the slowly but ever-changing attitude of the government toward the industry of society. When Adam Smith published his immortal work on the *Wealth of Nations*, a little more than a hundred years ago, the industry of the world was bound about by a set of governmental restrictions which were slowly but surely crushing out the life which they were intended to nourish and regulate. Laws and regulations which, in their inception had, perhaps, been fully justifiable, had so far outlived their usefulness, that they were doing enormous harm and injury by their continuance. It was the great and imperishable service of Smith that he sounded the war cry of death to these old obstructions which formed an impassable barrier to future industrial progress, and secured to the immediately following and to all future generations the great advantage of an enormously increased production.

But, like all great revolutions, this movement also rushed into an untenable extreme.

The argument of Smith for a greater freedom from the governmental restrictions of his time—unanswerable as against certain abuses which he had in mind—was used by his successors to prove that government could best protect the interests of society by a policy of do-nothingism. This purely negative theory of government functions became at one time so

prevalent, that it led our modern governments to adopt what relatively speaking, may be called a system of *laissez-faire*—of letting everything take care of itself, which has resulted disastrously in a thousand ways. Under the immense impetus of new discoveries in industrial processes and of relative freedom of action, so far as the restraining influence of government is concerned, private enterprise went forth into every field. Not content with developing new wealth by which it should be enriched, it sought out and set in order many ways of establishing artificial monopolies by which it might absorb a large portion of existing wealth. So successfully has this system been followed, that the great problem before the modern world is again the same which presented itself to the mind and times of Adam Smith, viz.: How shall we set our industry free from the bonds which bind and cramp it—only in our time the bonds are those which have been made and applied, and are all the while being drawn more tightly by private enterprise and ingenuity, while in Smith's time they were the bonds of government interference and restriction. Smith called upon private enterprise to check and circumscribe government activity; we are forced to call upon government to circumscribe and regulate private enterprise.

Our railroads, our telegraphs, our express companies, our telephone companies, our oil companies, our coal companies, our gas and water companies, all taking their start under the domain of free competition, and growing into strength and vigor under its influence, have come to rely for their prosperity and increased earnings not only on the actual increment of wealth which they contribute to the world's stock but also on the absorption of a larger part of existing wealth by means of artificial monopolies, a state of things which will continually grow worse unless it be made to grow better.

The remedies proposed for this disease, have been legion in number and infinitely various in character. The one which is most popular with a certain class of extreme optimists and also with their near connections, the extreme pessimists, is

that of letting everything alone. The disease is bound to grow worse and worse until the crisis is reached, after which it will take care of itself, and all will go well—say the optimists. They refuse to look the possibility in the face, that the patient may die, or if he recover, may carry about with him for an indefinite period the evidences of his disease in an impaired constitution or permanent deformity. The pessimist says, "Let him die. It is all one."

Another remedy which is the favorite proposal of another class of extremists, is to hand over everything to the management of government. When the agent of society, say this class, manages these and similar undertakings, they will be administered in the interests of the whole as opposed to those of a part of society, and in this way the problem will solve itself.

With neither of these classes do I sympathize. Improvement in government and society rarely comes about of itself, any more than improvement in the individual or the type. Human progress depends largely on conscious human effort, put forth in accordance with a conscious purpose. On the other hand we can not find any panacea for our social evils. The results of handing everything over to government are ruinous. The results of remanding everything to private enterprise are equally ruinous. The proper place to draw the line can not be ascertained by any general rule now within our knowledge. We must investigate each case on its own merit. I wish, in this paper, to take up one of the most important questions relating to municipal government, now before the public, viz.: The relation of the modern municipality to the gas supply.

I shall first touch upon the relation of gas to the needs of modern society, then notice briefly the peculiar nature of the gas business, and draw the plain inference in regard to its relations to city governments. I shall then take up the question of the relative merits of public and private management in general, and close with a discussion of the concrete question now before our American cities.

A very superficial consideration of the case will, I am sure, be sufficient to convince anyone that an ample supply of pure and strong gas at low prices has become an absolute necessity of every modern city. The idea of a necessity of life, it is true, is a purely relative one, and can not therefore be made the subject of an absolute definition like a mathematical concept. Our notion of what is indispensable to our lives changes from time to time. But we may almost measure the progress of civilization itself by the increase in the number of those things which have become absolutely necessary to our daily existence and comfort. It has not been so very long since soap was ranked as a luxury, and it is within the memory of men now living, that matches have gone from the category of luxuries to that of necessities. Railways afford an excellent example of an institution which, though almost unknown fifty years ago, have become an absolute necessity in the present state of our society. The general introduction of them has enabled the population to increase so rapidly and industry so to distribute itself that if they were to become useless a great reduction either in the population or the standard of life, or both, would inevitably follow. So it is to a less extent with the manufacture of gas. It has become as necessary to our artificial mode of living as bread and water. Any great interference with its production would as surely bring with it a marked disturbance of many of our business and social relations as a diminution in the supply of our breadstuffs; though, of course, it might not have such serious results. Any failure to develop the industry constitutes, therefore, a serious hindrance to the increase of comfort and business. It means that we must live on a lower level of material prosperity than that to which we might attain if we would use the means within our power.

As a means of illumination gas is, of course, practically indispensable. The introduction of gas into the dwelling-houses of our modern cities has diminished in a very perceptible degree the labor of lighting the house, and is, from

this point of view, a great labor-saving device. The end and aim of social reforms in this direction should be to secure such low prices of gas as would enable even the poorest householder to dispense with the crude and time-devouring system of lamp illumination. The use of gas as a means of illuminating places of manufacturing and business is, of course, an absolute necessity. The labor-saving element is so evident in this case, that no city could think of going back to the old system unless it had become reconciled to the thought of giving up the attempt to keep pace with the advance of its sister cities. It is said that one gas light is equal to one policeman in the protection of life and property. It is very certain that our large cities could not be rendered safe at night at all in many parts, without the use of an extended system of artificial lighting. The question as to whether electric light might not better replace the use of gas for this purpose will be noticed further on in the paper. Certain it is that for the present we must depend on gas very largely for this purpose, as is proved by the fact that even where the conditions are most favorable for the electric light, gas is still used on a very large scale, and that, too, at the exorbitant price which is demanded for gas in most of our American cities. The need of artificial light for the successful carrying on of many kinds of business, for social purposes and family use is so patent that it is not necessary to dwell further upon that phase of the subject.

Gas is coming more and more into use as a means of cooking, and driving machinery. There is probably no department of household expenses in which there is uniformly more waste than in that of the fuel supply. In our best ranges the loss of unutilized heat is enormous, even where the coal is fully consumed. Tests made by Dr. Fischer, the well-known German chemist, show that in ordinary domestic stoves in use in Germany, not more than twenty per cent. of the fuel consumed is really utilized for heating purposes, while in stoves consuming gas, eighty per cent. and more, of the possible effect may be utilized. It is asserted that less than ten

per cent. of the heating power of fuel consumed is utilized in our best American stoves, while more than ninety-seven per cent. is wasted in the ordinary open fire.

But one need only to examine the ash heaps, where the refuse of the ranges is deposited, in order to see that nearly as much again is wasted, owing to the incomplete combustion of the coal. The same thing is true of our heaters, perhaps in a larger degree than even of our ranges. In addition to this waste we must count the use of wood for kindling purposes which is a very large item indeed in the course of a year. To all this must be added the large expenditure of labor in getting the coal to the houses and the ashes away, to say nothing of the constant labor involved in caring for the heaters and ranges. Now a large proportion of all this waste could be saved, if we would take to the use of gas as the ordinary means of cooking, and heating our houses. There is, at present, nothing in the way of this except custom and the high price of gas—a price which could be easily reduced to one-third of that at which it is at present sold in most American cities if the consumption would increase to the requisite extent. If gas were thus reduced in price it would come within the reach of small manufacturing establishments as a motor power in the driving of machinery. This would redound to the benefit of society in a thousand ways. It would enable it to do away with some of the most burdensome forms of physical labor. It would reduce the cost of production of many articles to the advantage of the consumer. As a matter of fact, some cities of the world have furnished gas at such low rates for this purpose that it has become the decisive element in the ability of the citizens to compete with their rivals in other cities and countries.

We talk about protecting a home-producer by a protective tariff, and insist on high duties, when the most sensible course, oftentimes, would be to take such measures as would place the home-producer on a level with his foreign competitor by placing within his reach the productive opportunities which are at our disposal.

As an evidence of the great importance of gas in the business of manufacturing, the following testimony is valuable: Mr. J. Somerville, in an essay on the utilization of gaseous fuel, which received a prize from the North British Association of Gas Managers, states that the general use of gas and coke in the department of iron-making and steel-making has diminished the consumption of fuel by four-fifths in this century in those branches of manufacturing. To Siemens is due the perfecting of a system whereby iron, steel, glass, porcelain, etc., *i. e.*, any material needing to be fused, softened or baked at high or regular heats, may be so treated by gasified fuel, not only without any smoke, but with greater economy than by any other means. There is scarcely any industrial application of heat for which gas of one or another of the various classes is not better fitted than any form of solid fuel; and where gas fails to recommend itself, coke is always an available alternative.

The use of gas engines instead of steam engines, wherever a low horse-power is required, is on the increase, as being much cheaper where gas is sold at a reasonable price, and much safer everywhere.

The *Scientific Press* of August, 1883, says that the demand for the lighter class of steam engines is rapidly declining. This fall-off is due to the increased demand for gas engines of small capacity. Sir Frederick Bramwell, one of the most eminent of English engineers, thinks that the stationary steam engine of medium or low power will ere long be entirely superseded by the gas engine.

In a certain sugar refinery in Elsdorf, Germany, no steam engines have been used for years. Gas is manufactured for twenty cents per thousand feet, and is used for driving the engines and lighting the works. In the great ironworks of Schultz, in Essen, gas is manufactured at a cost of 8-16 pfennings, and serves both for fire and lighting. For the latter purpose rings are fixed over the burners, having rods or pencils of magnesia, which emit light on being heated by the burning gas.

The consumption of coal-gas in Great Britain for other purposes than lighting amounts, at present, to only about six per cent. of the whole output; but, in the better managed works, it averages more than fourteen per cent., and, as an instance of what can be done in this way by the best management, the case of the Borough of Northampton, England, may be cited, where over forty per cent. of the total amount used is consumed for other than lighting purposes. The proportion of gas consumed in cooking and driving machinery will probably continue to increase and will rise with every reduction in price of gas. This question is just now of special importance from a politico-economic point of view. One of the most marked results of our modern industrial economy is the rapid growth of large businesses. No one thing has contributed more to build up the large and drive out the small man than the general introduction of the steam engine as the motive power to drive machinery. This can only be profitable to those who have considerable capital, so that the power of labor has tended steadily to decline as compared with that of capital. The general introduction of a cheap motive power would be no inconsiderable aid in restoring that class of small manufacturers who have been driven to the wall by the competition of large capital and cheap power, *i.e.*, power which is cheap to those who have large capital. The gas engine promises to afford this cheap power to the small producer, if its price and that of gas be brought within a reasonable figure.

There is still another very important aspect of this question and that is its bearing on the health of communities. In those places where bituminous coal is largely used, and even in those where anthracite is chiefly consumed, the smoke-nuisance is getting to be a very serious one. The worst evils of this system are naturally seen in England, where a dense population and a damp climate make the results more noticeable. An association has been formed to agitate for an act of Parliament compelling the manufacturers to turn their coal

into gas before using it in the works, owing to the serious evils from the clouds of smoke which their countless chimneys belch forth. The evils of this nuisance are summarized in a clear way by Mr. W. R. E. Coles in an address before the annual meeting of the Sanitary Institute at Leicester in 1885. It is becoming intolerable from several aspects—sanitary, moral and economic. The death-rate of smoky atmospheres is considerably higher than that of others. Diseases of the respiratory organs and of the zymotic class are alike more deadly. The evidence on this point is absolutely without conflict of opinion. Physicians and physiologists agree in their testimony. The smoke obscures the light and we are thus deprived of one of the prime conditions of healthy animal life. Sunlight is as necessary as food. The moral aspect is quite as important. Those who are most active in ameliorating the condition of the poorer classes are urgent in their desire to see smoke abated. Intemperance follows as the almost natural consequence of lowered vitality and debased surroundings. To the poorer classes the abatement of the smoke-nuisance is of greater importance than to any other class. Their houses are for the most part in the least ventilated and most smoky districts. They are less able than other persons to get away to fresher air and purer surroundings. To them the expense and labor of keeping themselves and their homes clean are things of vital importance. To war successfully against dirt is practically impossible for the poor while they have to live in an atmosphere of smoke. There is usually but one poor pair of hands to do all the work and those the overwrought ones of a sickly woman whose first care must be to attend to the immediate wants of the husband and the infant family. To the cottier's wife in the country it is hard enough to keep her house, herself and her children clean. To the laborer's wife in one of our smoky towns, where everything is soon covered with smut which falls so fast as to blacken the clothes even while the poor woman is trying to dry them, it is practically but a mockery to tell her

to be clean and that she ought to keep herself and her family decent. It is unnecessary to dwell upon this theme. All who have considered the subject and know anything of the poorer classes will admit the great practical difficulties which stand in the way of their becoming more temperate, more cleanly, more elevated in their habits, while smoke and dirt abound, and the smoke-cloud obscures those rays of the sun which have the power of regenerating the moral as well as the physical life of man. It may be added that the smoky condition of town atmosphere is one of the chief reasons of people living out of town and thus necessarily withdrawing to a great degree their active sympathy and various social influences for good from their poorer brethren who are compelled to remain continually in town. The sheer exhaustion and inability to work which is often experienced by the poorer classes is largely due to the enervating influences of smoky atmospheres. The economic aspect is also worthy of notice. Money loss is always associated with heating-systems or firing-systems which are accompanied with the production of smoke. The public pay an enormous tax in the aggregate whether participating in the waste or not. The mere waste of fuel means a higher price for every ton of coal purchased by each consumer. The aggregate loss in wasted fuel, wasted labor, cost of carrying fuel and ashes, cleaning up deteriorated articles and in loss of heat is simply enormous. The effect of the smoky atmosphere is strikingly attested by the movement of industries in London. The last wax bleaching factory has disappeared, driven out by the increasing deterioration of the atmosphere. Thirty years ago roses were a prominent feature of Kensington gardens. They cannot be grown there now, while the last conifer died three years ago—killed, in the opinion of experts, by the bad air due to smoke.

The condition of things is, perhaps, so bad as this only in a few places in this country, but it is getting worse from year to year. A writer in the *American Journal of Gas-Lighting* says of New England, in a recent number, that "the smoke

evil grows apace with us. Bituminous coal is replacing anthracite and some of our towns are now in a condition to dispute the question of supremacy in the matter of sombre cloudiness with the honorable ancient smoky hollows of Old England. The removal of this evil cannot be hoped for until gas generally replaces coal as the means of heating and manufacturing. How soon this may be done is chiefly a question of the cheap production of gas."

In a word, then, gas has become indispensable to the comfort of the home, the health of the community and the efficiency of trade and industry. Its uses are almost infinite, and its application becomes more general in proportion to the reduction of the price. That country and that city which provides for a liberal supply of it at low prices may add enormously to their means of comfort, to the economy of the fuel supply, and to their power to compete with commercial and industrial rivals, and, conversely, the country and city which fail to do this must surely fall behind in this race for industrial supremacy or even in the attempt to hold their own.

Another fact is also evident to the most superficial observer, and that is, that the gas business must, from its very nature, be a practical monopoly. This might be inferred from a simple consideration of the technical and administrative conditions of the manufacture and distribution of gas. It is also amply proven by the actual history of gas undertakings, both in this country and Europe.

In the first place, in order to undertake the gas business with a reasonable hope of profit, it is necessary to be able to control a large amount of capital. It is impossible, therefore, for a man of small means to start such an enterprise. It is ordinarily beyond the resources even of wealthy private men and it is usual to resort to the device of a joint-stock company. This simple fact, that it takes a large capital to undertake the business, practically limits it to a very few men and tends to make it a monopoly in the hands of a company which has once fairly established itself, since the risks of going into it when a

rival company has the field pre-empted and is better able to make prices which will drive the new company out of the field, are usually prohibitive of the enterprise.

In the second place, the gas business differs from such a business as the manufacture of shoes, for example, in that while it makes comparatively little difference where the shoes are manufactured since they can be easily sent to any desired point for consumption, the gas must be made near to the place of consumption. The opportunities for competition are thus enormously diminished in the latter business as compared with the former. If gas could be produced anywhere and bottled for consumption at distant places, the whole nature of the business would be changed and it would be much more difficult to establish a monopoly than at present. There is another point in which it differs greatly from such a branch of manufacturing as shoemaking which renders it easier to establish a monopoly, and that is that the process of manufacture produces a large number of most offensive odors, which almost constitute it a nuisance. It could not be allowed that every man who pleased should set up a gas factory on every street corner, even if other preliminaries of the business allowed it.

There is a third important peculiarity of the gas industry which contributes greatly toward making it a practical monopoly. This consists in its mode of distribution. In order to get to the consumers, it must use the public thoroughfare in such a way as to constitute a serious impediment to business. This would be very evident, if it put its main pipes above ground in such a way that bridges would have to be built over them at every street crossing. It is scarcely less evident under the present system, which involves taking possession of the streets for a longer or shorter time, first to lay the pipes, and later in order to make repairs. The existence of the mains in the ground even after they are laid, constitutes a serious inconvenience, as is plain whenever a sewer is to be constructed or whenever an explosion occurs, as a result of the leaking of a main. Now, while we might

allow almost any number of shoe dealers' wagons to travel along the streets, it is perfectly evident that we cannot allow an indefinitely large number of gas companies to be tearing up the streets in order to lay or repair their pipes. The ravages of one company and that of a public one are ordinarily enough to drive citizens almost distracted, to say nothing of the state of things which exists where there are from two to six competing with one another as to which shall make the greatest nuisance of itself.

This last consideration, which one would think important enough of itself to decide this question, was noticed as long ago as 1822 in England in which year a Parliamentary Commission reported against the advisability of giving a concession to rival companies in the same district.

Mr. William Richards, in his excellent work on the manufacture and distribution of coal-gas, gives a short account of competition in England as a means of regulating gas prices, which is full of instruction for us on this point :

"The two or three first acts passed by Parliament in regard to gas companies authorized different companies to supply the same districts throughout the metropolis, and for a time opposition existed between the Chartered, the Imperial, and the City of London Companies in a portion of their districts. The attention of Parliament was, however, called at a very early period to the evils arising from this competition ; and Sir William Congreve, who was inspector of gas works, on reporting to the House on the matter, expressed the strongest disapprobation of it and recommended that no act should be passed without limiting the district of each company ; consequently, in all acts passed during several years, each of the companies was limited to a certain district under a heavy penalty for every light supplied beyond it.

"Other companies were, however, formed without statutory powers for supplying the metropolis, and in 1842 the principle which had been adopted in 1821 for preventing competition among the gas companies was abandoned, and an act was

passed authorizing a comparatively new enterprise to supply districts already lighted by other companies, and closely following upon that were four or five other acts upon the same principle, thus strengthening the competition which had existed for years in certain parts of the metropolis, and bringing on a state of affairs which can not be too strongly condemned.

"The competing companies laid their mains in all the leading thoroughfares where there was a large consumption; hence, in some streets there were as many as six mains, and Oxford street was supplied from six different works. This state of affairs led to the greatest disorder, and in some instances, whether accidentally or by design, the main of one company was connected with that of another, and by the frequent changes of supply the wrong service would be at times connected so that one company supplied the gas while another collected the payments. It was not an uncommon occurrence for a consumer on entering a house where there were three or more services, to state to the inspector of each company, in turn, that he had arranged to take the supply from the other company, and so kept out of the books of all the companies, and had his gas for nothing, which deception was favored through the secrecy observed by the various competing companies.

"This competition of companies made them reckless of their respective interests. Canvassers were employed not only to get new customers, but also to induce customers to change their supply to the company represented by the canvasser; and the most extravagant offers were made, which consumers did not fail to take advantage of. Sometimes the company, in case of a large consumer, would refit the house and keep the fittings in repair. In other cases two or more burners were allowed on the premises without passing through the meter, and were, of course, not paid for; or in the event of the nominal standard price being charged according to mutual agreement with the companies, a large discount was allowed on payment in order to disguise the bargain.

"Many consumers having driven a hard bargain with the company in the first instance, would report that more favorable conditions had been offered by a rival company and give notice of a change, when that supplying, rather than lose the customer, would consent to the same terms, and thus by the secrecy referred to, observed by the various enterprises, they were imposed on in every way by the unscrupulous portion of the consumers. Moreover, at one time no uniformity whatever existed in the charges, and premises were frequently lighted at one-sixth part of the value of the gas which they consumed; the rule was, 'Take what you can get and get what you can, but don't lose the customer.'

"The loss by leakage was also large, which frequently occurred in consequence of the imperfect manner in which mains were laid, and the repeated changes of service. Whenever the mains of two or three companies existed in the same street, instead of the companies' officers co-operating with the view of detecting and remedying the escape, it was disregarded until the public authorities had to interfere and insist on the nuisance being abated; hence, it was not surprising that accidents sometimes happened.

"Although a few consumers profited by this discreditable state of affairs, it was by no means advantageous to the general public and was ruinous to the gas companies, two of which, at least during several years, never paid a shilling of dividend to their shareholders, whilst the profits of the old companies were materially reduced. From these statements a faint idea of the evils of competition among gas companies may be formed; but it did not cease here, as by the multiplicity of mains a large amount of capital was literally thrown away, upon which the public are now paying dividends. In addition to this, there was the frequent breaking up of the streets and stoppage of the thoroughfares for laying or altering the mains and services, or transferring the supply from one company to another, which at one time caused a universal outcry throughout the metropolis; and on account of these

proceedings the public mind was for a period kept in a constant state of irritation by the press, all of which proceeded from the encouragement that had been given to competition by the public.

"The result of all these difficulties was that the companies agreed among themselves to cease all competition, to confine their operations to separate districts without interfering with each other; to discontinue all special arrangements and charge one uniform price over all parts of their respective districts. These proceedings caused in some instances an increased charge of from fifty to twenty-five per cent. and gave rise to considerable agitation in the metropolis; public meetings were held and resolutions were passed to petition Parliament for an inquiry, which was eventually granted. At that inquiry the public and the companies were both represented, and after a careful investigation of all the circumstances the districting arrangements were confirmed and the companies secured in their respective districts, and all other companies or persons were prohibited from supplying gas without first obtaining the sanction of Parliament; and a public act was passed embodying these provisions, although at the time the companies considered that they were subjected to some very arbitrary regulations."

Simultaneously with this process of formally dividing the public among them as, so to speak, lawful prey, a process of absorption was begun. In 1853, when the companies agreed to quit competing, there were some thirteen companies within the city of London. By 1860, when Parliament finally acknowledged that competition was out of place between gas companies, the number had been considerably diminished, and by 1883 the number had dwindled to three, and it is now, or shortly will be, reduced to two and perhaps to one.

Much the same course of events took place in other large English towns and cities. In France they began in the same way, but it soon became evident to the shrewd Frenchmen that such a course was ridiculous from every point of view—

that of consumer as well as company. The companies in Paris were assigned particular districts as early as 1839, and in 1853 they were all consolidated. In Germany, although they followed the example of England at first, it did not take them very long to see the absurdity of pursuing such a plan for any great length of time, and they soon adopted a system of laws which recognized the inevitable, and acknowledged the monopoly nature of the gas business.

When one looks at the question from a wide view, as to the effect of competition among such companies, upon the economy of the supply of capital in the country, one wonders how any one could ever have thought that it would be a good thing to allow competition among them. Think for a moment what it implies. It involves at least two or three and even more works where one would be sufficient. It means two or three and even more mains where one would be ample. It necessitates a corresponding number of different services in each house, and an enormously large number of inspectors and collectors—and all for what? Cheaper gas? By no means. The enormous sums of capital which such a system wastes will certainly try to earn dividends in some way or other, and the only means is in high prices of gas, or else what amounts to much the same thing, in a poor quality. When the public is finally compelled to take hold of the matter in earnest, to remedy the abuse, as it always must sooner or later, the large sums of wasted capital are always put forward as entitled to some consideration in fixing the rates.

We have had the same experience in this country exactly. The *Philadelphia Record* gave an account some time ago of the course of events in this respect in some of our American cities. A Committee of Congress in passing upon the application from a new gas company to lay its mains in the streets of Washington reported as follows:

It is bad policy to permit more than one gas company in the same part of the city. Experience has demonstrated that

opposition gas companies are not beneficial, but that they are injurious to the interest of the citizens, and instead of promoting cheap gas, they prevent and retard it by greatly increasing the capital necessary to carry on the business. To permit a competing company to enter in the business would be simply to increase the capital without increasing the business. Why should this be done when there is no good reason of public necessity for it, and when it amounts to a moral certainty that both companies will combine? When there are two parties to combine either will not long carry on a profitless business, and it is a well-known fact that every opposition gas company started in this country after a short term of competition, has either sold out, bought out, combined or pooled earnings with the old company. While the brief competition lasted, of course cheap gas prevailed, but when the inevitable combination takes place the people are made to pay the expenses of the war on a greatly increased capital. It seems that no law has yet been enacted that can prevent such combination, and there is no law that can prevent the individual stockholder buying the stock of the other company. Upon these and other good grounds the authorities of Boston and Cincinnati have refused to permit competing companies, and the citizens of those cities are enjoying cheaper gas than in the cities where competition was allowed. In England competing companies are forbidden by law, and existing companies are allowed to make ten per cent. on their investment. Hence the cities of the British Islands have the cheapest gas in the world. The prime cause of this cheap gas is that they have not excessive capital to earn dividends on. Opposition gas companies have not been capitalized on the old ones.

Every American city which has permitted competing gas companies to lay pipes in the streets, has suffered through the consolidation of the companies, the capital having been increased, and the consumers forced to pay higher prices for their experience. The following cities have received this treatment:

New Orleans,	Providence, R. I.,
Charleston, S. C.,	Brooklyn,
Memphis, Tenn.,	Jersey City,
St. Louis, Mo.,	Newburg, N. Y.,
Chicago,	Trenton, N. J.,
Buffalo, N. Y.,	Harrisburg, Pa.,
Detroit, Mich.,	Lancaster, Pa.,
Albany, N. Y.,	Baltimore, Md.,
New York City,	Savannah, Ga.,
Poughkeepsie, N. Y.,	Paterson, N. J.

Before consolidation the price of gas in New York City was seventy-five cents per thousand feet, but as soon as the six companies came together they watered their capital from \$18,308,920 to \$39,078,000, and raised the price of gas one dollar per thousand feet, making it one dollar and seventy-five cents.

In Baltimore the price of gas was advanced seventy-five cents per thousand feet; in Harrisburg it was raised from one dollar to two dollars; in Paterson, N. J., and in Savannah, Ga., the price was also raised.

In Detroit, Mich., a stringent charter was granted upon the filing of a bond to secure the city against the possible combination of the old company with the new one; but in spite of this iron-clad agreement a combination was effected, and the people were forced to pay not only all the expense of the gas war and the duplication of works, but also a large dividend on an inflated capitalization.

This is a point of such importance that we may well dwell upon it more at length. It is safe to say that one of the most obstinate prejudices of the average American is his unreasoning belief that free competition will protect him from all the evils of industrial monopoly. And that, too, though he is often himself engaged in the very work of effecting a combination by which all competition is effectually prevented in branches where such combination is most difficult

from the nature of the business. The testimony of one or two experts in the business of gas manufacture may serve to show how clearly those actually engaged in the industry see that the business is and can be only a monopoly. Mr. Gilbert, of Grand Rapids, Michigan, in a speech before the American Gas-Light Association, at their meeting in Washington, October 15th, 1884, said, "The business of the manufacture and distribution of gas is so peculiar in many of its characteristics as to be almost outside of the domain of rules governing other enterprises. Capital once invested cannot be removed and if not profitable is lost forever. Competition is so deadly to it that it is impossible for rival companies to occupy the same streets without ruin to both, or without consolidation with its attendant double investment and cheap light rendered an impossibility."

"It is a fact not admitting of controversy," says a writer in the American Gas-Light Journal, "that the cost of gas to the consumer has never in any instance been permanently lowered through the competition of any opposition company ever established in this country, in spite of the inevitable outcry made by the progenitors and promoters of such schemes as to their willingness and desire to make such concessions to the public in the matter of selling prices. Opposition gas schemes as a rule, and unfortunately a rule which admits of few exceptions, are instituted with the primary object of raiding as far as possible the business of an established company, which business it may have taken years to develop and acquire. What better example can be found than that of Brooklyn? During the term of Mayor Schroeder permission was given to the Mutual Gas-Light Company to open the streets and avenues of the city for the purpose of laying mains and conduits for the supply of illuminating-gas. In consideration of such grants the projectors of the company agreed that a greater price than \$2.00 per thousand feet should not be charged consumers. What was the result? This company from its very inception did all it could to

wreck other companies. And the wrecking policy was carried out not by selling gas at a lower price, but rather by efforts which had for their object the depreciation of stock values in order that a controlling interest could be secured at figures much below its true value. In reality, instead of selling gas at lower figures, they increased its price. The pledge made to the authorities at the time when a charter was sought, not to demand more than \$2.00, was given only to be broken. To-day they are charging \$2.50 in all localities where they have succeeded through their adept system of stock depreciation in gaining control of the field.

"The city of Yonkers affords a good example of the intolerable state of things which follows an attempt to regulate prices in this branch of business by competition. There are now three companies. They are not slow in canvassing for consumers, and the consequence is that the householders are constantly altering their allegiance by continued change in the bestowal of their favors, now giving to one company and then to another. The streets are torn up in all directions making travel difficult if not impossible; the leakage of gas may be noted in abundance, and the public can get no remedy from the stench which is so strong that many houses and stores are rendered almost uninhabitable by it, since each company claims, when appealed to, that the leak emanates not from its conduits, and consequently refuses to make search for the seat of the trouble. And thus the matter is continually growing worse and will probably continue to do so until combination takes place and the consumers have to pay for the whole loss of capital since the inauguration of the period of competition."

One other quotation from an authority on gas-matters, Mr. Theobald Forstall, of Chicago, will be amply sufficient to prove how gas-men regard competition. In a speech before the American Gas-Light Association, from which I shall quote again, Mr. Forstall said:

"Up to the present time the influence of legislators and councilmen has been exerted in favor of new companies

through ignorance of the consequence. Urged on by the cry of competition from the press, the unreflecting public and the owners of patents, they have in many cities actually made cheap gas impossible by encouraging an investment of capital in gas-works and mains far in excess of present demands of consumers, overlooking the fact that the income upon the expenditure must be earned by increasing the selling-price of gas. Nor is the evil confined to those cities in which competition actually gains a foothold. All gas companies established without guarantees and subject to the whims of councils and the cupidity of rings, appreciate the uncertainty of their position and prepare for the inevitable struggle by maintaining a higher price to increase the profits and reap the fullest harvest while the field is all their own. The desire to make the most of a precarious situation is a trait of human nature not confined to the directors of gas companies. And thus the uncertainty of tenure has been and is to-day an active cause of dear gas and excessive dividends in anticipation of probable competition. Nor is there a single permanent advantage which can be offered in good faith to municipal corporations or individual consumers by a competing gas company which an established one would not willingly concede in exchange for permanency of tenure. Moderate dividends well secured over a term of years are more attractive to investors than large but uncertain profits which may disappear at any moment by the unexpected votes of a few aldermen. Were this a new question and one peculiar to the United States it could be easily proved *a priori* from the very nature of the business that the ordinary law of competition does not apply to the supply of gas."

Judge Cooley, of the Michigan bar, has put the case quite as strongly from a little different standpoint. "The supply of public conveniences to a city," he says, "is usually a monopoly, and the protection of the public against excessive charges is to be found first in the municipal power of control. Except in the very large cities, public policy requires that for sup-

plying light and water there should be but one corporation, because one can perform the service at lower rates than two or more, and in the long run will be sure to do so. But scheming men make periodical attacks upon corporations existing for those and similar purposes, and with a popular cry for their watchword they can always enlist local interest in their favor. If they succeed in obtaining a rival franchise, the subsequent history is commonly this: a war of rates for a season and then either a sale of one franchise to the owners of the other or a division of territory or an agreement in charges. The final result is this, that the two supply the market at greater cost than the one, and the additional cost is paid by the public. Whoever expects that a destructive competition is to be continued indefinitely, must have a faith in the integrity and public virtue of local boards which experience scarcely justifies. The legislature which exposes a great property invested in a public enterprise to disastrous risks, offers a direct inducement to irregular and crooked proceedings. If men solicit from a city a franchise which they cannot legitimately make profitable, it is a natural inference that they propose to use it as a trading property or in some way to find their profit in the manipulation of future councils. The true policy of the state is to give due and full protection to corporate property and at the same time to insist upon the faithful performance of corporate duties. It is no more for its interests to invite and encourage raids on corporations, than it is to countenance vast corporate profits for which no adequate return is made. In some kinds of business competition will keep corporations within bounds in their charges, in others it will not. When it will not, it may become necessary to legislate upon profits. If the business is simple, like the supply of light or water, this can be done by prescribing a tariff of rates."

Professor H. C. Adams, in a recent address entitled the *Principles that should Control the Interference of the State in Industry*, attempts to determine by an analysis of the nature

of the industries themselves, which of them may safely and economically be left to the free play of competition. He divides industries into three classes, termed industries of constant return, industries of diminishing, and those of increasing returns. The first two, he thinks, are adequately controlled by competitive action; the third class on the other hand requires the superior control of state power. Industries of the first class are such as demand proportional increase of capital and labor to secure a given increase in product. That is to say, if $2x$ capital and labor result in $2y$ product, the application of $3x$ capital and labor will result in $3y$ product. The increment of return is equal to the increment of capital and labor. All those businesses in which success depends largely on attention to details and where the personal element of the laborer is brought prominently into view, fall under this class. For example, the retail business of merchants is subject to the rule here stated. It is not necessary for public officials to inquire if sugar is sold as low as fair dealings demand, for this business is one that admits easily of multiplication, and, consequently, invites competition. The step from a clerkship in a grocery to the proprietorship of a new establishment is not a difficult one to take, and for this reason we are assured that the profit of an ordinary grocer will not greatly exceed the salary which he must pay his head clerk. There can therefore be no motive for applying the rule of financing to businesses of this sort.

The same conclusion applies to the second class of industries where a given increment of product calls for a proportionally larger increment of capital and labor. Assuming the same relation to exist in an established business as before, if $2x$ capital is required for $2y$ product, an additional x of capital will not produce an additional y of products, but something less. That is to say, $3x$ capital may produce not $3y$ of product, but only $2\frac{1}{2}y$ of product. It calls for no abstruse argument to recognize that society is quite safe in submitting such lines of industry to the control of competition. The

ratio of product in the new industry is greater than in the one that is farther developed, and for this reason we may rely on individual interest to maintain a large number of separate producers. Farming is a fair example of this class of businesses.

In the third class of industries, the increment of product increases with every increment of capital. Thus, if $2x$ of capital give $2y$ of product, the economic application of $3x$ of capital will give more than $3y$ of product. Where the law of increasing returns prevails, the principle of free competition is powerless to exert any healthy regulating influence. This is true because it is easier for an established business to extend its facilities for satisfactorily meeting the new demand than for a new industry to spring into existence.

Now it is evident that the gas business belongs to the third class of businesses. It is, thus, by its very nature, outside of the sphere where competition can be depended upon to exercise a regulating influence. It will be answered to this, I know, that the invasion of a gas company has often forced prices down and that although they were afterwards raised, they never went back to the old figure. This is not true always or, perhaps, even of the majority of cases. But the reason why it has happened in some cases is not far to seek and supports the truth of the view we are maintaining. It is evident that in the case of the third class of industries, a company engaged in this field may make enormous profits protected by its practical monopoly. After a while the attention of other parties may be attracted to this fact. It is pretty evident that under the circumstances they cannot hope to compete with an established business as far as the ability to offer cheap gas is concerned, for they must invest an enormous amount of capital before they can get any returns at all, while the old company may get returns on every dollar expended in answer to a really new demand. But if the old company is really making the enormous profits which may undoubtedly be made under such circumstances, it is perfectly possible for a new company to force them to divide profits by entering the field.

So clearly is this recognized to be the object of most companies which attempt to enter a field already occupied, that the old company ordinarily buys out the plant of its rival in order to get it out of the field. The whole outcome of the project under the most favorable conditions is that the new company, or rather its manipulators, have bled the old company, and the old company has lost some blood, which it now proceeds to suck out of the community again in the shape of the old rates. By showing how much its works have cost, counting in the purchase of the useless plant of the rival, it secures a seeming justification for rates which, considering the reasonable cost of a plant, are often simply outrageous. In addition to this, a large sum of capital has been wasted in the mains and plant which might have brought in some useful return to the community if it had been invested in some productive enterprise. It is possible that the investor has lost something but the consumer has gained nothing at all. The natural fall in price of gas which would have been brought about by the enormous improvements in the manufacture which have taken place in the last ten years, and the new uses for residuals has been again and again defeated by the attempt to regulate price by letting in a competitive company. Of course the private companies are not going to lower prices any faster than they have to do it, but the way to compel them to lower the price is not to let in a competing company, since that has failed wherever tried, but to regulate the price by public authority, *i. e.*, we must recognize the monopoly character of such undertakings and act accordingly.

Such being the fact, it remains for us to choose between monopolies in the hands of private parties and monopolies in the hands of the government. It was at one time in the history of modern nations no uncommon thing for the government to grant to private persons trade monopolies of all kinds. It amounted practically to giving to private persons the right to plunder the public to any extent within the limits of the possible. The government derived the advantage of whatever

sums the parties could be persuaded to pay for the privilege. Some of these monopolies were granted for purely personal reasons, in order to enrich favorites of the men in power, whether it was a king or an aristocracy. Since we have come to have a different view of the relations of government and governed, so that we now insist that any special privileges shall be granted, not for the benefit of the government in the narrow sense, but for the advantage of the public, we no longer regard such grants as legitimate. It is now an axiom that no special privilege shall be granted except in order to further the public interest. The granting of a monopoly can be justified therefore, nowadays, only on the ground that such a plan is the best means of securing some public benefit. It goes, then, almost without the saying that in case such a monopoly is granted it must be attended with such restrictions and conditions as will secure the interests which it is intended to further, viz., those of the public. We cannot think of conferring upon private individuals the absolute right to a certain branch of business, and then let them exploit the public at their discretion. That is to say, we must subject the company receiving a monopoly to the strictest supervision on the part of the public. Our choice, then, is still further limited, viz., to a regulated monopoly in the hand of private parties on the one hand, and public management on the other. When the case is presented in this form, and who can deny but what this is the correct form, that is, the form which actually corresponds to the facts of the industrial world around us, we get from the very first a correct insight into the real problem which confronts the city government of our modern state.

It would seem at first blush that there could be only one sensible answer to the question which form we should adopt. It would appear almost as a matter of course that, if it is necessary to organize a monopoly in order to secure the interests of the public, this monopoly should be within the control and management of the public. Public ownership

is, therefore, the natural system in all cases of necessary monopolies.

If any one proposes, then, to confer the grant of a monopoly of the manufacture of a prime necessity of life upon private persons, the burden of proof must lie upon him. He must prove beyond a peradventure that the interests of the public can be best secured by that system, since the whole presumption is against his position. With this fact kept in view let us examine the arguments pro and con in regard to the benefits of public and private management.

The first ground commonly advanced against public ownership and management is the old and threadbare statement that the state has no business to engage in industrial enterprises. Such general statements as this are the ordinary refuge of ignorance and selfishness. It is the usual position of those who have not taken the time to study the history of government action in ancient and modern times, or who are interested in preserving the *statum quo* because they are enabled to profit by the general prevalence of such an idea in the community at large. The same kind of argument has been advanced not only in this field, but also in nearly every other one as well, to keep the government from assuming and performing the new duties which come to it with every passing year.

It is by such arguments as these that the government was kept for years from assisting in the establishment of free schools, from adopting laws in regard to the condition of factories and the working of women and children in the factories, from establishing public asylums for the unfortunate classes of the community, from establishing public bath houses, etc., etc. In a word, whenever it has been proposed that society should undertake in earnest the work of improving the conditions of life in its midst by such means as promised to be of value, we have been met by this class of chronic objectors and alarmists who have loudly cried out, "It is not the business of the state to do any of these things." If we had taken counsel of this class we should have had to-day no free schools, no sanitary

regulations, no safeguards of life and liberty such as we now have in many different fields; we should be in a sorry way indeed.

Perhaps this point is important enough to merit a digression of some length. What are the true functions of government? How shall we determine the proper limits of state interference? In every period of human history there have been political theorists who have attempted to define and point out the true functions of government. They have attempted to draw a sharp line between those things which a state may and the things which it may not do. One set have laid down the general principle that it is the sole business of government to protect the life, liberty and property of its citizens. There might not be much objection to this statement, if the proposers of the theory would give a sufficiently broad interpretation to the theorem, but they have usually limited the meaning to a very narrow field. For example, if a railroad makes a discrimination in its charges as between citizens, it destroys the value of property just as certainly as if it took a force of men and marched to the place and destroyed one of the buildings belonging to one party. And the interference of government in such a case is justified simply on the ground that it should protect the rights of property. But the adherents of this theory have usually taken a very narrow view of the range of the fundamental hypothesis. Another set of theorists have added to the proposition stated above that the state may also undertake to establish and support those institutions which can never become profitable to private individuals, but which it might well repay the community to establish and support. Still other theorists have added those institutions, which, although they might be profitable to private persons and are necessary to the public welfare, are by their nature monopolies, and should therefore be in the control of the state rather than in the control of private parties who would exploit the public as far as possible.

None of these theories have been satisfactory and that for a very good reason. It must appear plain to every one who

gives even a slight attention to the subject, that the attempt to determine the true functions of government in general is idle, for the simple fact that they are different for different conditions. It is plain that the government of the civilized people may—nay, must—do many things which for the government of a barbarous people, are utterly out of the question. Think for an instant, of trying to limit the functions of such a government as ours, to the same number, and identical forms which are appropriate for a tribe of American Indians. The mere statement is absurd; and yet, if there are certain true functions of government in an absolute sense, they must apply equally to the Indian and to the citizen of Philadelphia or New York. The “true” functions of government are local and temporal in their nature, they vary with different stages of civilization, with different peoples, with different times, etc., etc. It is useless, therefore, to try to lay down any rule or law which shall be equally applicable to all states and conditions, for all times and places. John Stuart Mill has perhaps expressed this fact most happily. He says in one place in his treatise on political economy, that it is difficult to lay down any general rule, except the vague one of general expediency, and that no function should be assumed, unless the grounds in its favor are very strong; in another place he remarks that the ends of government are as comprehensive as those of the social union, they embrace all the benefit and all the immunity from evil which government can be made to confer. The particular things which a government can do with advantage to the society which establishes it, vary with the social state, the form and organization of the government, etc.

The proper functions of government are, then, not absolute, but relative, and they change with an advancing civilization. Those then who say that the State should not undertake the manufacture and distribution of gas, because it is not the business of the State to engage in industrial enterprise, may be answered in various ways. In the first place, they

assume the whole point in dispute when they lay down this broad proposition. There is in the very nature of the case no general principle to which they can appeal in order to prove their point, except the very proposition which they are to prove; again, it is evident from certain facts in our system of government, that we, as a people, anyhow do not believe in this as a general principle, since our government, as a matter of fact, does engage in various forms of industrial enterprise, and that so successfully that nobody proposes to exclude it from this sphere. Take for example the most general form of government—the Federal. It runs the post-office which is a gigantic industrial enterprise, and one which, looked at as a social institution, pays enormous profit to our society. We all agree that the government should retain this institution. Many people think that it should also undertake the telegraph. It would be safe to say that a very great majority of the people would favor such a measure if they were not afraid that such a move would increase to too great extent the patronage of political parties, *i. e.*, they fully believe that it would be a legitimate government enterprise, but are opposed to the actual assumption of such business on the part of the government solely on grounds of expediency. Many of our people look upon the express business in the same light, while one of the most eminent jurists in the United States has lately given it as his opinion, after a thorough investigation of the elements in the case, that it will not be many years until the people of the United States will regard it not only as the legitimate business of government, but also as its imperative duty to assume the management of the railway system of the country; that the time will come when it will be regarded just as absurd to let private individuals run the railroads as it would now to propose to hand over to the same people the management of all the wagon roads in the country. Whether this be so or not, the fact that such a man holds such an opinion is sufficient to show how our ideas on this subject of government interference change with time and circumstance.

In the sphere of local government we see instances of the same kind. It has now become the rule in our American cities for the city to own and manage its own water works. Now and then, it is true, we hear the sentiment expressed that this is also not a proper business for the city corporation, but the voices are so few and so weak, with the exception of those who are trying to get possession of the works for their private enrichment, that they have no great influence. When we come nearer home and ask what the people of the various states think about this question, we find that they believe fully that it is a legitimate function of city government to look out for the wants of the citizens in regard to water and gas since they have usually incorporated in their laws full permission to establish and operate both gas and water works. I have given more attention to this point than it merits, perhaps, in this immediate connection, because we hear so much about the true functions of government from certain parties on every public occasion, that, unless we stopped and looked into the matter, we might suppose that there really is some patent means by which we can determine in each individual case whether it falls within the charmed circle of legitimate government functions, without taking the trouble to investigate the merits of the particular case itself. The question whether any particular function should be assumed by the government, is a special problem which must be examined separately upon its own merits and not decided according to the *a priori* dictum of a political theorist.

If this point be well taken, we have only to examine the particular grounds for or against the private or public system of management. It is claimed in the first place, then, in favor of the private system of ownership, and, consequently, in so far against the public system, that private companies can manufacture more cheaply than the public corporation. Even if this were true it would not by any means follow that it would be for the interest of the public to allow private companies to get possession of this monopoly. For how would it help the

public to know that private companies could manufacture cheaply, unless the latter would sell the gas more cheaply. This last is the important point. It does not follow by any means that the public would profit by this greater cheapness. The whole history of gas undertakings, both in this country and in Europe, is against any such claim as this. If it be a fact that the private company can manufacture more cheaply than the public, this only means, as a matter of fact, that a few men may get very wealthy out of the business if they can get the chance.

But let us examine this claim, that the private company can manufacture more cheaply than the public. What are the grounds usually advanced to support this proposition? It is said that the private owner has a more immediate interest in the business than the public officer, and that he will look more closely after the details of the business. He can prevent many little losses, which in the aggregate make up an enormous total. This is undoubtedly true of a business which is small enough to allow one man, *i. e.*, the owner, to actually oversee and supervise the details of his business. This is not at all the case in a great undertaking where the owners are numerous and have to entrust the management entirely to paid agents. Even where the directors are taken from the number of stockholders, this does not by any means give a sure guarantee that the business will be carefully managed. The actual supervisors must be few in number, and it is often more to their advantage to follow their interests as private individuals in a position to make great gains in illegitimate ways, than to secure large dividends on their stock—a state of things which exists in very many of our large undertakings, as many poor stockholders in this great country of ours can testify. A large company must depend on the faithfulness of paid agents just as much as the public in its management. Now, is it true that the employees of private firms are, as a rule, more faithful than the government officials? There is wide-spread impression, I am aware, that this is the case,

but I do not think that it is true. It is certainly not true where there is a proper system of civil service. In Germany, for example, the private employers could count themselves happy if they could only secure as high a standard of probity and faithfulness to duty as the government secures in its service. There are indeed potent reasons why a government can secure this faithfulness more easily than private parties. Its service is associated with more dignity in the public mind. It is possible to develop an *esprit de corps* in the government service which no private firm, however great, could hope to secure.

A government which organizes its civil service on a sensible basis, can obtain more devotion and faithfulness by far than any large company, which, by the very plan of organization, must be as impersonal a body towards its employees as the state, without enjoying that universal regard and respect which is everywhere connected with government service, no matter how bad it may become.

The only advantage which a private company possesses over the government is, that it may offer large rewards for any extra keenness on the part of its employees, which result in bringing large profits to the concern. This policy is exceptional, however, even in the case of private companies, and the experience of other governments, and, indeed, of our own, is that scientific investigators in the government employ are just as eager and keen in the pursuit of science as though they were working for private companies with the expectation of large reward. This extra keenness is moreover of special value only in speculative business in which the competition is close, and where everybody in the employ of a firm must be on the guard against the wiles of competitors. It has not very much place in a business like that of a monopoly company, in whose case the inducements to trade lie chiefly in making a low price of gas in order to enable more people to become purchasers.

On the contrary, so far from the industrial advantage being on the side of the private company in this comparison, there

are some considerations which go far to justify the statement that the public can manufacture more cheaply than private enterprises. In the first place, a city can usually obtain the capital necessary for the enterprise at lower rates than private individuals, so that the fixed charges in the shape of interest on money invested in the plant may be considerably lower in public than in private undertakings. Secondly, since the gas company must be a monopoly, it is peculiarly liable to attacks from the public. Every few years a bitter attack is made upon the privileges. This state of things acts to make the value of the stock unsteady. There is an element of risk which must be made good by higher dividends during the periods of rest. The risks in the case of a private company are far greater from this cause than in the case of a public management, and these risks must be paid for in the only way which is open to the companies, viz., higher prices of gas.

Mr. Vanderpool, one of the most successful gas-managers in the country, called attention in a speech before the American Gas-Light Association at Cincinnati in 1885 to the absolute necessity of charging high prices in order to compensate for risk attending the enterprise owing to continued and unavoidable public attacks.

So much for the theoretical argument in the case, which rather seems to be on the side of the public company.

When we turn to experience to find out what answer it makes to the question, whether private companies or public companies manufacture more cheaply, we shall not get a perfectly decisive answer, but it will be one which is quite as favorable to the public as to the private company. I have not been able to get the necessary statistics on this point in regard to American companies. They are, indeed, not attainable. Our private companies are interested in keeping their affairs as secret as possible, and we have no means of getting at the facts in the case.

The same Mr. Gilbert before mentioned called attention in the speech above quoted from, to the fact of over-capitalization,

which I shall notice again in another connection, and said that the prices of gas should and must come down, and referred to the experience of his own company which had paid good dividends although it had lowered the price of gas. In answer to a question of a fellow-member as to what dividends the company had actually paid, he replied that there were things connected with all gas companies which their owners do not care to have published—which means, of course, that it is to the interest of our present companies to carefully keep all facts relating to the actual cost and profits of the business from the public which is often being fleeced whether the company is making anything or not.

In England the companies are compelled to report certain facts to the government from time to time, and some of these facts will be of use to us. During the year which ended March, 1884, the public companies in the United Kingdom of England, Ireland and Scotland, amounting to some one hundred and sixty, carbonized 2,459,341 tons of coal, from which they obtained 24,507,217,850 cubic feet of gas. This would give 10,000 cubic feet of gas to the ton. The private companies during the same time, carbonized 5,171,963 tons of coal, from which they obtained 52,333,749,963 cubic feet of gas. This would give 10,127 cubic feet of gas to the ton. This would indicate that the private companies managed to get, on the average, about 127 cubic feet more per ton of coal than the public companies, which would represent about one per cent. advantage in this respect. There seems to be no appreciable difference in the per cent. of leakage and waste if one can infer anything in this respect from the difference between the actual amount of gas sold and that consumed, since the per cent. thus unaccounted for was almost identically the same; being in one case nine per cent. and in the other nine decimal one per cent. Of course, neither of these points is absolutely decisive since the economy in the manufacture of gas does not consist merely in the getting of the greatest number of feet of gas per ton of coal, but largely in

the relation of the value of the residual products to the price of coal, and the process which results in giving the largest amount of gas per ton, often destroys the value of the residual products very materially. The difference between the amount actually sold and that manufactured, includes not only the waste, but also the amount consumed in the works, so that the results given above are only indicative of tendencies. There is another reason why the result given above does not justify us in inferring too much, and that is that the amount of gas derived from the ton of coal depends largely on the quality of the coal, and the report does not show whether there was not great difference between the different companies in regard to the kind of coal employed. But so far as the returns go, the showing is very favorable to the public companies. The general opinion in England seems to be that the gas furnished by the public companies is better than that made by private companies, if one may infer anything in regard to that from the number of complaints in regard to the gas of the private companies. The management of many of the public companies is, according to the admission of prominent directors of private companies, almost a model in its character, and may serve to the private companies as examples of what gas works should be. All that the cities have to do is to pay enough to get good engineers, and they can have just as good works and just as cheap gas as any private company can possibly manufacture. The history of Germany in this respect is very similar to that of England. The public companies have made about as good a showing as the private companies, although in the first place they were erected in some cities which the private companies refused to enter, because the prospect for profit was not great enough. The city gas works of Berlin, which were built in 1846, and are, therefore, now nearly forty years old, are a model in every respect. They have served as the standard by which the other companies of Germany could measure their efficiency and success. The management of the works has been remark-

able even in Germany, the land par excellence of good and cheap administration. The city has often realized as high as ninety and sometimes as high as ninety-five per cent. of the price of the coal used from the sale of the residual products. It is claimed by the private companies in Germany, that the cost of manufacturing in the works controlled by the city, is about three per cent. higher than in those controlled by private companies. Even if this be true, which is disputed, it is not sufficient to establish the superiority of private works over those of the public. It may, then, be fairly said that this claim set up for private works that they can manufacture more cheaply, has not been by any means proven, and that the evidence is ample that public works may be, and as a matter of fact are, managed quite as cheaply or, indeed, more cheaply than private works.

In Philadelphia there is an example of a private company, the Northern Liberties, which, according to the *Philadelphia Record* of December, retains the most crude and old-fashioned methods. For instance, the ammoniacal liquor which, with proper management, can be sold for twenty-eight cents per ton of coal carbonized, is allowed to run to waste at the Northern Liberties Works, while even the Philadelphia Gas Trust manages to get four cents per ton for theirs. Two bushels of lime are used at the Northern Liberties in purifying one ton of coal carbonized, while in English works the proportion is one bushel of lime to each ton of coal. The old-fashioned furnaces in use there will produce 10,080 feet of gas from Penn Gas Company coal, using twenty bushels of coke under the retorts. With regenerative furnaces the Trustees could obtain 11,500 feet of gas from the same coal, with only twelve bushels of coke under the retort, saving eight bushels of coke, fifteen per cent. of coal and ten per cent. of labor.

Mr. Gilbert, whom I have quoted once before, says that the gas companies in this country protected by supposed exclusive rights, have shown a great lack of that progressive spirit which gives to all business its best results.

This is nothing more than we might expect from private companies enjoying practical or legal monopolies. The gas companies of New York waste 25 per cent. of the gas manufactured, showing what we may expect in the way of economy from a private monopoly. If they should be able to keep up the present exorbitant prices for gas they can well afford to waste 20 or even 30 per cent of the gas and still make enormous profits. The history of the Birmingham (England) works, in the hands of private parties and in the hands of the municipality, is full of instruction on this point. They were acquired by the municipality in 1875, and within four years the productiveness was just doubled. They were able to earn in 1875, at the time of purchase, £82,290, and in 1879, they earned £165,000. In this case and in many others municipal management has attained a profit of 17 per cent., where private management only got $8\frac{1}{2}$ per cent.

Mr. Arthur Silverthorne, an eminent English expert from whom I shall quote again in another connection, says "that the event has since proved that nothing could be more felicitous than the way in which our municipal authorities have managed even the largest gas undertakings confided to their care, and I fearlessly assert that the unpaid bodies have achieved far superior results to those obtained under the directorate of private companies." More evidence on this point will be adduced in another connection in a later part of this paper.

However this may be, of one thing we may all be certain, viz.: That whatever may be true of the possibilities or actualities of cheap manufacture on the part of private companies, they rarely fail to exploit the public in the most merciless way, and they do not hesitate to resort to the most questionable devices to avoid the effective control of the public. Nearly every American city, beginning with New York and Boston, can afford most ample proof of this.

The next most important argument in favor of leaving the business of making gas in the hands of private companies is,

that in this way a great source of political corruption is kept out of city politics. This argument is heard only in this country. It does not occur to foreign cities to allow their public works to become a source of political corruption in this sense. This argument can be met in two ways. In the first place the giving of such power to the private companies does not change the fact of political corruption, if the conditions for such an abuse exist in the respective society. It merely changes the form. Private companies do not, perhaps, use their works as mere resting-places for political henchmen, but they do what, in some respects, is still more corrupting and ruinous in its influence on our politics, they go into the business of buying votes of councilmen and legislators by the wholesale. They resort to the most objectionable form of bulldozing in order to make their workmen vote for their particular candidates in the districts where their works are situated. The revelations in the reports of the New York Senate Committee of Investigation are sufficient to convince any but the most obstinate or stupid that the mere fact that the gas business is in the hands of private companies, does not give any guarantee that it is therefore no force in city politics. Consider, for a moment, what a power for evil a company with a capital of \$20,000,000 or \$50,000,000 may be in all city affairs. It may be said that it would at least confine itself to gas questions and leave other questions alone, so that there would be some chance for the proper considerations to have influence in most questions. The history of gas companies does not justify any such bright hopes. In the first place, they always join hand in hand with every other monopoly in the community, be it a legal monopoly or not, in order to prevent any investigation or regulation of monopolistic abuses. The gas company can always be relied upon to assist the water company, for example, in all attempts to resist the law and plunder the public under the forms of law. Both will unite to help any form of actual monopoly in holding its own against any effort to break it down. Our American communi-

ties are ordinarily delivered bound hand and foot into the power of the enemy where gas and water companies manage to unite with the tendencies to industrial and commercial monopolies which exist in our midst.

Private gas companies then do not inaugurate or preserve any purer atmosphere in city politics. They only change the form of the rottenness and corruption. On the other hand, it is perfectly possible to secure such reforms in the administration of our cities, as will result in removing this grave evil from our city politics. This general point deserves very careful consideration, because it is one of the sorest points in our democratic form of government. So far our attempts at local government in the large cities, have been mostly failures. Many abuses have also become very evident from time to time in the administration of our federal and state governments. What is the best means of remedying these abuses? One party says the only way is to take from the government the power to touch these things at all. That is, for fear that the government will do some harm, because of its bad administrative methods, we must take away from it all power of doing good. This general plan is the refuge of incompetence and cowardice in all critical junctures.

We might as well face the issue squarely, and make up our minds to solve the problems of administration. One thing is very certain, that unless we do this we need not count on being able to retain our popular form of government in the long run. There is nothing surer in the domain of political science than that the form of government which best furthers the interests of society will persist and remain. If those of us who believe that the democratic form is the best, would see our ideals realized, we can only accomplish it by showing that this form is able to keep the advantages of the other systems and add some of its own which do not attend the other forms. To do this we must improve our administration, which is and always has been the weak point of democratic forms of government. The way to improve our administration is not by

trying to abolish it. Such a policy has never, in the long run, worked anything but evil. This is not solving the problem, it is trying to avoid it. Do the best we can, there will still remain a modicum of government administration which we cannot get rid of without going back to a state of practical barbarism. And long before civil society would consent to do this, it would acquiesce in any form of government, even in that of a despotism, which would secure to it the most essential conditions of a life worth the name. Indeed, it has been claimed, and that with good reason too, that the real source of the bad administration which is characteristic of our system as a whole, is to be found in the fact that we have reduced the functions of government to such a minimum, that nobody cares about what government may or may not do except those who have a pecuniary interest in the running of the machine. There is undoubtedly some truth in this view. The true road to government reform is not through the means of diminishing the importance of government action still more, since that would leave the same abuse in the government as before, and merely diminish the incentives to their reform. Misuse of the power to control the gas undertakings, does not spring from this addition to government functions. The tendency is there and is showing itself in every part of the city government. Leaving the management of the gas business in the hands of private parties will not contribute to reform this tendency; resting it in city boards need not increase it. It must be attacked from an entirely different side. The whole city service must be removed from politics and put upon a purely business basis. When this is done, we can manage the gas business as well as the policing of the streets. The same argument which would prevent the city from taking the gas works or from keeping them when they are in its possession, would lead to giving up the water works, and then the business of taking care of the streets, and then of the police, etc., etc. Those men who really desire to reform the city civil service, should oppose

most vigorously any proposition to still further reduce the interest which the average citizen still possesses in the city government, since it would then be impossible to get any attention at all to administrative problems. The true and only system of securing a pure and efficient administration, lies in getting the state to assume its proper functions, and then it will become evident to all that the only way to have a tolerable state of things is to insist upon a sensible system of administration which can be then more easily obtained. The stake of the citizen in good government must be real and great before he will give adequate attention to the questions of governmental administration. One of the chief reasons why the citizens of this generation have been persuaded to take a livelier interest in city administration, is to be found in the fact that the cities have increased their functions in every direction to such an extent, that the expense of the various undertakings has begun to affect their pockets.

So much for what we may call the general argument. Now let us consider the concrete question as to whether the cities of the United States should assume the management of the gas works.

The cities of Philadelphia, Richmond, Virginia, and Wheeling, West Virginia, have for many years owned and operated their own gas works. It is worth while to examine their experience in order to see how successful these undertakings have proved to be. They fairly represent two classes of cities—the large and the small. The city government of Philadelphia, in common with that of our other large American cities, became at one time a byword and almost a synonym for inefficiency and corruption. The gas works shared of course in the general deterioration which became characteristic of our city governments during the years following 1860. They were managed extravagantly and were used as a great political machine, with all the evil consequences which always follow such a course. But there are several things to be considered in passing judgment on this question.

In the first place, the management of the gas works has always compared favorably with the other city departments. It may indeed, fairly be claimed that they were better managed than either the police or street department, or that of public buildings. They have already begun to share in the improvement which is taking place, slowly but surely, in the city government.

In the second place the city fathers who acquired the works, following the precedents which exist in our governmental history, provided what turned out to be the very worst system of management which they could have possibly devised and recommended to the community. They put the works under the control of a board of trustees, elected by the city councils, which form of management was to continue until the indebtedness contracted by the city, in the purchase and extension of the works, should be fully paid off. As it turned out there was no power in councils to investigate the affairs of the trust. The trustees were practically irresponsible. It did not take very long for the advantages here offered for the building of a ring to become very plain to the class of politicians who are always on the lookout for such things. A powerful political machine was built up on this basis. It is, however, very plain that the gas trust was not altogether responsible for the growth of such a ring; as similar organizations arose in every large city in the country, where they had no gas trust or anything similar to it. The recent management of the trust is very decidedly better, and now, for the first time in the history of the trust, the city has the power to reorganize the management, since the debt has been finally paid off. A strong movement has been set on foot several times to sell the works. Nearly every argument in favor of the sale, except those which came from parties interested, either directly or indirectly, in the sale, has been based on the previous management of the works by the trust. But it is pretty plain that if our fathers had set out to devise the system of management which should offer the best opportunity for all manner of crookedness, they

could not have found any better system than that which they actually adopted. An irresponsible board is the very worst species of government. Now it is evident that even if all the charges which are commonly made against the gas trust of this city were literally true, word for word, that fact would not by any means prove that the city could not manage the works any better under a different system. Because it failed to achieve good results under the very worst plan of control, does not by any means prove that good results cannot be achieved under a good system. In the second place, while the gas trust has undoubtedly laid itself open to grave charges of various kinds, yet, when we come to examine the facts of its management, we shall find the actual results achieved under this worst of systems are not such as to make it clearly evident that the city should dispose of the works, even if it could not find any better system than that now in operation. The city has to-day as the result of the gas trust's work, the possession of a very valuable property worth at least fifteen million, if not twenty or twenty-five million dollars. It has had a fair quality of gas at a price much lower than the city of New York, which is the only city which can fairly be compared with it. And if Philadelphia has had its gas trust investigations with no result worth speaking of, it has had at least no such a terrible state of affairs as that displayed in the city of New York, where the gas companies have charged shamefully high prices, and contemptuously bought up legislators and councilmen to act as they dictated. The state of affairs in New York, though not bad enough to excite great public disgust in this country, owing to its having many counterparts, seems to English writers on the subject to reveal a state of affairs which could not exist in England for twenty-four hours. They have had just as bad things in England, but they think that they are now beyond the possibility of such scenes.


The city of Richmond, Virginia, after sending a committee of seven of the city council to the cities of Baltimore,

Philadelphia, New York and Boston, to investigate the gas business as conducted in those centers, decided in 1850, to erect and manage its own works. They were in successful operation by the 22d of February, 1851, and have ever since been managed by the city. The price of gas which stood at \$4.00 per thousand feet in 1851, was gradually reduced to its present figure \$1.50 to private consumers and is furnished free to the city. The number of consumers increased from 1,500 in 1854 to 5,000 in 1885, and the amount consumed from 300,000 cubic feet in the former year to 138,004,258 in the latter. Although the total consumption is at present relatively small and the cost of manufacture is therefore relatively high, yet the works in 1885, received \$52,093 more than they expended, besides furnishing nearly 29,000,000 cubic feet of gas to the city for public lamps, etc., free of charge; which at the same rate as charged to private consumers would represent about \$14,500 more, or a total of more than \$86,000 profit, being equal to a rate of 17 per cent. The gas averaged more than 18-candle power. Gas was manufactured at the works in December, 1884, at a cost of 49 cents in the holder. The opinion of citizens of Richmond in regard to the success of their undertaking may be fairly represented by a statement of the Hon. W. C. Carrington, who in March, 1886, wrote to me as follows: "Our gas works have been operated with great success—furnishing our public lights free for streets and buildings, paying all expenses of manufacture and leaving in addition almost enough profit to pay six per cent. interest on the whole cost of original and additional construction." The manager, Mr. John H. Knowles, wrote about the same time: "The gas works are the only paying institution which the city possesses. Every tax-payer is a stock-holder. I have been first inspector and then superintendent for thirty-three years. The people, the owners of the works, seem satisfied with the management." In his annual report of 1882, Mr. Knowles stated that it becomes more and more apparent as time rolls on, that it was wise and prudent in the city to own

her own gas works: her ownership prevents opposition works or imposition; and it is now generally conceded that one gas works can supply gas cheaper than two in the same city, and the profits made by the works go into the treasury and are equivalent to relieving the people of that amount of tax; besides the works are becoming more valuable every year.

An attempt was made, in 1882, by a private company to persuade the city to sell to them its gas works. It held out what seemed to be most extraordinary inducements in the way of cheap and rich gas, etc. After a careful investigation, during which a committee was again sent in order to examine the works of many other cities, the common council, by a large majority, decided that it was the best policy for the city to keep its works and manage them itself. It is worthy of note that the committee which reported in favor of the city's keeping its own works was of the opinion that "as a matter of a fact there is more danger to be feared from the presence of a wealthy corporation having valuable franchises, seeking to influence our elections by corrupt means, than there is that political harm will result from the city's control of its own gas department." It is safe to say, that the management of the public works in Richmond will compare favorably, from any point of view, with that of any private works in the country.

If, however, we would see what is possible in the management of public companies on a large scale, we must go to those places where it has been tried under the most favorable circumstances. We Americans can surely, when we once fairly give our attention to the matter, organize and administer as efficient a system of city government as either our English cousins or our German second cousins. There are in England, as said above, some one hundred and sixty public companies which are, on the whole, so well managed that they are quite as often models for the private companies as the latter for them. The relative number of public and private companies is changing continually in favor of the public companies. So sure are the cities in England of the



advantages of public ownership that nearly every week, certainly every month, some private company is bought out by the city. These works are often purchased at ridiculously high prices, which shows still further how great an advantage the cities expect to derive from the undertaking. I found a list some time ago in the *London Journal for Gas-Lighting*, which gave the prices which some seventeen towns had paid for their gas works. They ranged from one hundred and forty to three hundred and eighty-two. That is, some towns, in order to get rid of the private gas companies, were willing to buy the stock at nearly four times the par value. The average paid was over two hundred per cent. This does not look much as if the road to improvement of our condition lay through a continuation of private ownership.

With the exception of London, Edinburgh, Dublin, Liverpool, Sheffield, Newcastle, Preston, Bristol and Hull, the gas supply of the large towns of Great Britain is in the hands of the municipal authorities. In the towns just mentioned as exceptions, it is probable that ere long the gas works will pass from the hands of the companies into those of the local authorities. It is now generally admitted that there will be extensive changes soon in the government of London and that a great central authority will be established which will deal at least with subjects affecting the metropolis as a whole. When this board is established it is expected that one of the first of the objects that it will be asked to address itself to will be the acquisition of the various London gas works, and the example of London will doubtless be followed by the other cities. A strong movement in London has already been begun in favor of the transfer of gas works to the municipality. All who favor municipal reform in London are to a man in favor of such transfer. Nearly all the candidates elected from London to the present Parliament are in favor of the transfer. A circular was sent out just before the last election to all candidates from London containing among other questions the following: In case of your election would

you be in favor of the purchase by the municipality of the powers and properties of the Gas and Water companies? Affirmative answers were received from the great majority.

In 1885 over 42,000 taxpayers of Liverpool united in a petition to the city councils to purchase the gas works and operate them on city account. Dr. Gross, one of the members of the council, made a speech in its favor in the course of which he showed that in Lancashire the gas works owned by city corporations were valued at £6,000,000, while those owned by private companies were only valued at £3,000,000. *Gas and Water*, a London technical journal, says that in almost every instance where corporations took possession of the works the price of gas was lowered and taxes reduced from the income of the undertaking. The *London Times*, in commenting on this subject in a series of articles on municipal corporations, expressed itself as follows: "In all the boroughs to which reference has been made, a spirit—an intelligent spirit—of progress is to be found actuating the corporations. Even through the smallest boroughs is to be found a desire to extend their sphere of usefulness by assuming control of gas and water supply. Corporations have not always found it easy to get possession of the undertakings. In dealing with gas companies the corporations have had to contend with demands for exorbitant prices and since the passing of the Borough Funds Act this has been especially the case. The act referred to expressly provides that no local body shall spend any funds raised by rates to promote bills for the establishment of gas and water works which will compete with any company authorized by Parliament. The gas and water companies therefore knew well that they only have to hold out in the matter of terms and they must get their price, for competition on the part of the local authority is impossible. Until 1872 this was not the case, and Glasgow, Leeds, and Aberdeen succeeded in purchasing the existing companies by means of an application to Parliament to authorize them to establish competitive supplies. In each case the gas companies

offered strenuous opposition in the committee, but they were ultimately compelled to accept the terms offered by the corporation, the alternative being that the Parliamentary committee would sanction the competitive scheme. Therefore, since the passing of the Borough Funds Act nearly all purchases have been made by agreement.

The profits of the boroughs have been realized, it must be remembered, under circumstances which compare unfavorably with the profits that should ensue to the shareholders of an ordinary company. There is probably no instance in which a local authority has been permitted to purchase a gas or water undertaking without being subject to a requirement to set aside annually a certain proportion of the capital laid out, or to form a sinking fund for its ultimate extinguishment. Companies whose capital is provided by shareholders are, of course, under no such liability, and to that extent local authorities are handicapped, so far as comparisons go.

The relative efficiency of working, in one respect at least, may be seen from the fact that the average of gas unaccounted for of forty-nine works of private companies amounted to 9.26 per cent.; that of fifty public works only 8.88 per cent. So that in the very point in which private companies should show their relative superiority they are inferior.

Glasgow affords a fair example of public management as it exists in Great Britain. When the city assumed the works it took 8½d. per thousand feet sold, to pay interest on the capital which represented £3 13s. 11d. per ton of coal carbonized. In 1885 it required but 5½d. to pay the interest, and the capital employed is only £2 9s. 5d. per ton of coal. Since 1880 the quantity of gas sold has increased 33 per cent., while the capital has been decreased £260,130. The profits have been sufficient to pay for all extension of mains, meters and works which have been required to manufacture and distribute an extra supply of 500,000,000 cubic feet per annum and pay off £260,130 of debt. At the present rate fifteen years will replace the capital.

The borough of Dundee assumed the works in 1865, with the amount sold at 175,000,000 cubic feet, the price 4s. 10d. and the waste 23.30 per cent. As the result of twenty years management it sells nearly 400,000,000 cubic feet at a price of 3s. 6d. and with a waste of only 10½ per cent.

Leicester assumed the works in 1878, with gas at 2s. 10d. and a consumption of 555,000,000 feet. By 1885 the price had been reduced to 2s. 4d. and the consumption had increased to 800,000,000. Each reduction of 2d. in the price meant a diminution of revenue on old amount sold of £6,000, making a reduction of £18,000 in all. The original capital was £635,000 from which £19,000 had been written off from profits derived from undertaking. £8,000 had been put in a reserve fund, £3,000 laid out for purchase of chemical works to utilize the residuals, and £121,000 paid over for benefit of taxpayers.

It is not worth while to follow this aspect of the subject farther. These are fair examples and give us some idea why the assumption of this business by the municipalities has become so popular in England. The *London Journal of Gas-Lighting*, declares that is much easier to enumerate the cities which do not care to get their works than those which do.

In Germany much the same state of affairs exists. They began with the system of private works, but it did not take them long to find out that this was not an ideal system. The gas-works of Berlin already referred to above were erected in 1846. In 1860 there were two hundred and sixty-six gas-works in Germany, of which sixty-six belonged to the municipalities, and two hundred to private companies. In 1883 there were six hundred companies, of which two hundred and ninety were public and three hundred and ten were private. That is, in 1860 about twenty-five per cent. were public companies, while in 1883 this number had increased to nearly fifty per cent. Even now the public gas works are more important than the private works, though not so numerous. The capitalized value of city undertakings is

nearly double that of private works, being one hundred and forty-three millions, as opposed to seventy-six millions. The inhabitants of the cities in which public works exist amount to seven millions, as opposed to four and one-half in those with private companies. The public works consume more than sixty-five per cent. of all the coal used in the manufacture of gas. The tendency is steadily toward the assumption of the works by the municipality. Of the one hundred and sixty-four leading cities, eighty-eight are supplied by municipal works.

In France we find a different state of things. Here only a small per cent. of the cities own the works. The reason for this is to be found mainly in the fact that there is no such thing in France as local government in our or the English or even the German sense of the term. As a result, whenever it is proposed that the state shall do anything, they think of the general government, and of course nobody proposes to have the general government undertake the business of furnishing gas to the municipalities. The result of this system of purely private companies is to be seen in the fact that many, or rather, most towns in France have not the advantage of gas to any great extent. The single city of Paris uses more gas than all the rest of France put together.

This fact in regard to Germany and England is full of significance for us. In both countries they have given all systems of management a fair chance, and as a result of the experience of the last fifty years, they are going over to the system of city ownership and city control as rapidly as possible. They tried the system of letting the private gas companies compete with one another in order to see whether this plan would furnish cheap and good gas. This system is now given up finally and forever in both countries. They next tried the system of regulated companies with practical monopolies. They tried all manner of devices to secure an effectual regulation of the companies. In England, for example, they prescribed the maximum price which they might charge for gas,

they prescribed the quality, *i. e.*, strength and purity, and then fixed the maximum dividend providing that all surplus should be used in reductions of price to consumers. They next adopted the so-called sliding scale, that is, they fixed a maximum price and normal dividend, but provided that, for every deduction in the price of gas to the consumer, they might declare an increased dividend. The increase allowed was one-fourth per cent. dividend for every reduction of penny in the price. This last device has been the most satisfactory on the whole. But any such a system pre-supposes the most entire publicity in the affairs of the company, and the closest supervision of its business by public officials, and wherever a city has a civil service which will adequately protect its interests by such supervision, it has also a civil service which could manage the gas-works themselves to the great advantage of the city itself. In spite of all these safeguards and restrictions, the complaints are so constant and so well taken in many cases, that as a result, the corporations are purchasing the works as fast as they reasonably can. Now if neither England nor Germany, with their enormously greater facilities for close and exact supervision, have been able to put up with the evils which arise from private management, surely we have but small chance.

In this connection I quote a portion of a letter which I received a few weeks ago from Mr. Arthur Silverthorne—the man in England who, perhaps, of all men there, has given most attention to this subject of the comparative working of municipal and private companies, and the author of several works of great merit on gas and water works.

"I have never swerved," he writes, "for a moment from the opinion that borough monopolies in the form of public companies (that is what we call private gas monopolies, such as exist in nearly all American cities), afford the very worst form of despotism that a community can be subject to, and I feel great surprise that anything can ever be urged in their favor. The gradual repeal of these monopolies (for

the movement is still in progress) has led to cheaper gas, richer gas, and purer gas. From the moment our English municipalities succeeded in wresting the management of these concerns from the lethargic handling of these private companies, the gas corporations set such an example of improved working that it completely awoke the modern Rip Van Winkles, so much so that they have never ceased to imitate the municipal management, and in a large measure have later emulated the prosperity of the town-managed gas undertakings.

"I say, without fear of contradiction, that from a scientific point of view, twenty years ago the cities found the production of gas, owing to the inefficiency of management, a mere distillation of tar, conducted without any regard to scientific laws. The distillation of coal is now, on the contrary, owing largely to the influence of the public example, conducted on the most scientific principles; residuals that were thrown away by our predecessors are now properly manufactured into useful products, and the influence of scientific method is present at every stage of the process. The proper extraction of carbonic acid gas alone was a source of increased light unthought of by the old style manager. In the same category may be put the development of ammonia as a means of reducing the cost of manufacture. But the public companies have done a great deal more than the private companies can ever achieve. They have redeemed our capital debts and lightened public taxation."

The experience of English cities, then, according to Mr. Silverthorne, is plainly in favor of public management, and that, in spite of the fact already alluded to, that the corporations, in seeking to acquire gas undertakings in England, have invariably had to contend against very exorbitant prices. The only means of relief was to get Parliament to allow them to start rival works and compete with the private company. This was forbidden by the before-mentioned act of Parliament in 1872, which practically put the municipality at the

mercy of the private companies. All purchases since 1872 have been on terms agreed, which really means at the terms of the companies.

The inordinate length and cost of arbitration has contributed in a great degree to this result, and, as a consequence, some of the principal rules of value have been greatly neglected, and now, consequent on the remarkable success of certain municipal undertakings, every imaginable device is resorted to in order to enhance the value of the plant, thus taking frequently the extravagant form of claims for back dividends, compulsory purchase of unused capital—all this in addition to maximum dividends allowed by law.

And yet, in spite of all these things, the rule of private monopolies is so unbearable that the municipalities are continually buying them out at their own enormous prices.

There is still another reason why it is bad policy for our cities to hand over to private companies the management of this monopoly. They would ordinarily have to agree to allow the company to charge a certain rate for the gas which it manufactured; this rate would be based on the supposed cost of gas at the time of contract. Now any such arrangement as this binds the city to pay this price, no matter how cheap the processes of manufacture become; it may very well be, that the processes may be so very much improved, that gas could be manufactured for one-half or one-third the cost at time of contract. The consumers would still have to go on paying a price which would represent a profit of two or three hundred per cent.—in a word they would thereby shut themselves off from any participation in the means by which the cost of production may be lessened.

It may be said that the city takes the risk of having the value of the works depreciate upon its hands, by the development of electric lighting to such an extent as to make them practically worthless. It is evident that is not the opinion of private parties who make a fair offer for the franchise. In the first place, such a supposition is a mere supposition which

is by no means justified from anything which we have thus far seen. In the second place, the public would bind itself to use gas at the price agreed on per thousand, instead of electric light at the smaller sum for an equivalent amount of light, if it handed over the works to a private company, and allowed it to charge a fixed sum per thousand; that is to say, it would have to stand the loss, after all, the only difference being that instead of a loss which would be represented by hundreds of thousands, it would be a loss of millions. Besides, the loss will have to be borne by the consumers, whichever way you turn it, since private companies are sure to charge a rate of insurance which will recoup them for any possible loss, which the consumers will have to pay. The difference in the price of gas which consumers need pay the city, and that which the private company will charge would build up a sinking fund which would pay for the loss of the gas works from depreciation, ten times over.

There is still another reason why cities should own their gas-works; they may become a very important source of revenue. It has been shown above, that such works can be managed as well by the public as by private corporations. Now suppose, for sake of argument, that the price of gas should be fixed at \$1.60 per thousand feet, and the consumption remains at its present amount, let us see how much revenue the city of Philadelphia, for example, might derive from its present works. We have, I am sorry to say, no means of determining exactly how cheap gas can be made in the city, since the reports of our Gas Trust do not give us the information which we need in order to be quite exact. But we have figures from other places which may be of some assistance to us.

In England at the present time, gas is manufactured at a net cost of thirty cents per thousand feet; some works in New England now manufacture it for thirty-eight cents per thousand feet in the holder, from the same coal as that used in Philadelphia. During the Gas Trust investigation, of

1881, Mr. Kennedy offered to give security in any amount, if the city would give him the contract to supply gas to city holders at sixty-two cents per thousand feet. In an address to the American Gas Light Association in 1883, its President at that time, Mr. Theobald Forstall, said: "For the first half of 1883 the cost of gas delivered to consumers by the South Metropolitan Company (of London) was 39.65 cents, and by the Chartered Company, 44.90 cents, the average being 43 cents on the whole quantity sold by both companies. Of the items making up this cost, two only are lower than the corresponding items in New York, viz., coal and labor. The net cost of coal, less residuals, was 9.60 cents per 1000 cubic feet, sold for South Metropolitan, and 13.33 cents for the Chartered Company. In New York the greater price of coal and the lower value of residuals would bring the net cost of coal up to 25 cents per 1000. The cost of labor and superintendence at the works of the London companies is 9.11 cents and 8.38 cents respectively. This in New York would be amply covered by 15 cents per 1000.

"To a single company, then, supplying the whole island, the cost of 16 candle-power gas would stand about as follows:

Coal, net cost per 1000 sold, less residuals, . . .	25
Labor and superintendence, per 1000 sold, . . .	15
Retorts, purifying material, etc.,	05
	—
Cost in holder,	45
Repairs, distribution, taxes and general expenses, .	20
	—
Total cost delivered, per 1000 sold,	65

"*These figures are based upon actual expenses in other cities not more favorably situated than New York, which latter I have taken as a type of all the larger cities of the Union.*" Thus, according to the testimony of an expert in the business, gas could be furnished in New York to-day at sixty-five cents per thousand feet to the consumers by a private company. It

certainly could be furnished quite as cheaply in Philadelphia. If the prices were \$1.60 therefore, this would allow a clear profit of ninety-five cents per thousand feet, which at the present consumption would represent a profit of nearly \$2,000,000 per year to the city. It can easily be seen that a very large reduction in price could be made to the consumer, and still a very handsome profit realized for the city. The diminution in price would probably lead to a largely increased consumption which would go far towards keeping up the gross profit to the city. The City of Nottingham, in England, took possession of the gas works in 1875, when the price of gas was eighty-three and a half cents per thousand feet, and the consumption was almost 500,000,000 cubic feet. In 1877 the price was seventy cents, and the consumption, 623,000,000, and as the price was lowered to sixty-six and two-thirds, sixty-two, fifty-eight and fifty-four cents respectively, the consumption rose to 723, 891, 1000 and 1106 million cubic feet, while the profit on the undertaking rose from \$25,000, to 60, 70, 115, 135 and 165,000 dollars, for the corresponding year, *i. e.*, the price was lowered in eight years less than twenty-five per cent., while the consumption nearly doubled, and the profit increased about 600 per cent., a striking testimonial to the excellence of public management, as compared with the previous private management, as well as of the large increase in consumption and consequent profits which may follow a small reduction in price. There is no reason except poor management, why such a city as Philadelphia should not derive an income of \$1,000,000 per year from the gas works, while it lets the consumer have gas at \$1.00 or less per thousand feet. The London companies sell gas at sixty-five cents per thousand feet and still make twelve and thirteen per cent. dividends.

This source of revenue should not be overlooked at the present time. Our communities are in need of many great improvements—better water, better streets, better schools, etc., etc. It is almost impossible to persuade the people to put up

with a higher tax rate, and to sacrifice such fruitful sources of income when they can be so easily exploited without oppressing any one, is, in my opinion, the very height of folly.

It is very pertinent, of course, in this connection, to ask what form the management of the works should take. I think that there is only one safe form, viz., that of a city department with a chief appointed by the mayor, and assisted by a sufficient number of competent engineers selected with a view to their fitness. The engineers and all other subordinate employees, should be appointed on the basis of a competitive examination, and should be irremovable, except for inability to discharge their duty or for neglect of it, and on demand of the person removed, the chief should be required to state the same in writing, and send it to the Councils. The works must be in direct charge of professional engineers and the service must be absolutely divorced from politics, and the sooner we citizens of America recognize this fact the better. With such a service as this we may be secure from the corrupting influence of a gas trust Machine, of the equally corrupting influence of a private gas company; we may have good and cheap gas, and lower taxes.

Before leaving this point, it may be worth while to call attention to the fact, that even the Gas Trust of Philadelphia has given the citizens, relatively speaking, cheap gas. In 1884 the price of coal-gas varied from \$4.00 in Galveston, Texas, to \$1.00 in places like Chicago, and a few others, where gas wars were raging, while it has been reduced to \$1.60 in Philadelphia and will in all probability be still further reduced within a short time. Other large cities have had to pay considerably more than Philadelphia, besides paying taxes for the support of the public lamps, and having nothing to show for it all except gas consumed, while Philadelphia has a most valuable plant free from debt, and worth, including the franchise, fifteen or twenty millions of dollars.

Before closing this paper it may be desirable, even at the risk of some repetition, to present the gas question as it exists

in this country in its genesis and present condition. To get the facts clearly before us there is no better way than to relate the history of an actual gas company. In the small but rapidly-growing town of B—— a company was organized to manufacture illuminating gas. It asked and received no special privileges beyond those which lay in the very nature of the business, such as the right to open the streets and lay its pipes, etc. Its capital was \$150,000. The works were erected and proved very profitable. Dividends varying from ten to thirty per cent. were regularly declared year after year. In the course of a few years the growth of the community made it impossible to supply the demand for gas with the old plant and through the old mains. It seemed best to reconstruct the works entirely. This was done at a cost of \$350,000. Instead of regarding the old capital as long since amortized, *i. e.*, extinguished by the surplus already received over and above a fair return on the capital, it was still kept and the new enterprise capitalized at \$500,000 instead of \$350,000, the actual cost. On this new capital the returns were still large, reaching the old figure. In the course of another decade or two the same exigency arose again. The works were again reconstructed on a larger scale at a cost of \$500,000. The same process was repeated. The old capital was still retained and the new enterprise was capitalized at \$1,000,000, though a plant just as good as the existing one could be built for half the money.

Now, two or three things are evident on a very superficial inspection. In the first place, it is plain that this process of over-capitalization may easily be carried on to such an extent, where it is not checked, as to absorb all the possible profits of an increasing business, preventing absolutely the time ever coming when anything will be left to increase the wages of labor or lighten the burden of consumers. It is quite as plain, in the second place, that this process can take place unchecked only when the undertaking enjoys a practical monopoly. If free competition actually prevails, the inflow of new capital will

force the managers to regard amortized capital as dead and to run on the basis of the changed conditions. For example, if a man goes into the manufacture of cotton cloth and finds that he must tear down and rebuild his factory, he is kept from keeping the cost of his old mills in his capital account by the simple fact, that if he does so another man who is willing to come in and invest a sum of money equal to that which the new mill cost can compete with him on the basis of the existing cost. In the same way, if a new process makes his old machinery useless he must simply throw it away, charge it up to profit and loss, and begin again. In this way the interests of consumers are continually guaranteed so that they always obtain commodities on the basis of their cost of manufacture with the newest and most approved processes. The old capital is thus continually cleared away and the basis for a regular and rapid economic advance is secured.

In the third place, any such over-capitalization is fundamentally opposed to the interests of the community. The progress of the arts and sciences is tending with an ever more rapid pace to increase man's power over nature, *i. e.*, to cheapen production. The advantage of this tendency should redound to society in its capacity as consumer. Any process by which this is prevented is in so far injurious to society. A better means of counteracting this tendency has never been devised than the very common one of over-capitalization by which a few are enabled to intercept the profits which should accrue to the bulk of society.

The instance given above is a very simple one and is over-capitalization in its most legitimate or rather its least illegitimate form. In addition to this, there are usually the more objectionable forms of watered stock and bonded debt issued to an inside ring at rates far below its true value, *etc.*, *etc.* The attempt to regulate these evils, by allowing competition, is, as we have already said, and shall say again, has been, and must be, a complete failure.

As to the actual state of facts in this country now, we may again quote Mr. Gilbert. "All managers of gas property,"

said he, "understand perfectly well that it would be easy, with present knowledge and experience, to renew the plant with a much smaller investment than was possible under former methods. Have we a right to expect full dividends on capital invested under such circumstances? The prices ought and must come down. It is, of course, impossible to fix the exact amount of investment necessary or proper to produce 1,000,000 cubic feet, owing to varying conditions of population, business, and cost of materials. A careful English figurer estimates that the capital should not exceed £5 for every ton of coal carbonized, which means at 10,000 feet per ton \$2.50 per thousand feet of gas sold, so that 25 cents profit per thousand would pay ten per cent. on a fair capital. This can be almost, if not quite reached in this country."

Mr. Greenough, of the New England Association of Gas Engineers, says that 50 cents profit would pay ten per cent. on the capital under the most unfavorable circumstances in this country. Mr. Vanderpool, of Newark Gas Works, says, that in England the capitalization of provincial companies reaches about \$2.94 per thousand of gas sold, and in London about \$3.22. But everybody knows that the London companies are enormously over-capitalized, and that they could be replaced to-day for half of the nominal capital. The present sum declared as dividends would pay at least 25 per cent. on the cost of a plant as efficient as their present one. It was also stated that the companies of New York are capitalized at \$26,000,000 when \$15,000,000 would be ample. Since the date of that speech the companies have combined and raised their capital to \$47,000,000, being, at least, three times what it should be. Baltimore had \$9,225,000 before the Equitable was swallowed, and yet it does not sell as much gas as Boston with one-fourth the capital. The average capitalization through the country is from \$6.25 to \$15.00 per thousand of gas sold. And yet an eminent gas engineer declares that \$5.00 is sufficient under the most unfavorable conditions, and that \$2.50 may be reached under favorable conditions. Mr.

Theobald Forstall, one of the most eminent gas authorities in the country, from whom I have already quoted, considers that \$3.00 per thousand sold would be ample for the city of New York, whereas it is capitalized at nearly ten dollars. The London companies, according to Mr. Forstall, are capitalized at about \$2.77 per thousand feet sold. "Nor must it be forgotten in this connection," said he, "that the capital of the London companies represents considerably more than the actual cost or present structural value of their plant. The excess of capital expended, in the days of competition, in miles and miles of unnecessary mains and services, in the extravagant Parliamentary charges incident to the establishment of every new company, in the great cost of developing a new industry, in which rapid improvement caused frequent renewals of apparatus—this dead weight is still represented in a greater or less degree in the present income-earning capital, and must be taken into account in comparing the situation in London and that in New York."

When we come to compare prices of gas to consumers, we find the widest variation, ranging from \$5.00 to 90 cents. This latter figure has been reached by the city works of Wheeling, West Virginia. Even under similar conditions the price varies from one to two dollars. It is then safe to say that our present system has led to over-capitalization and high prices. It has had, therefore, as a consequence, a most decided limitation of the consumption, as compared with what is desirable. The consumption in England averages two or three times as much per head as in this country.

The attempt to let competition regulate the prices of gas is and must be a failure. The only question is what must we put in the place of the lack of system which has hitherto prevailed. There ought to be pretty general agreement as to two or three fundamental principles. It is clear, in the first place, that if we are to depend on private enterprise to furnish the gas supply, we must provide a system under which there will be some inducement to invest capital in this branch; and,

on the contrary, if we would do the best for the interests of the public, we must provide a system which will prevent such shameful exploitation of the consumers as has characterized many of these undertakings, and such shameful waste of capital as has characterized nearly all of them. We should recognize the inevitable and grant to gas companies a monopoly within the territory which they supply. In this way we secure the first conditions of a cheap system of supply, viz., that there shall be no waste of capital in duplicating mains and plants. We must then proceed with the intention to grant to those who put their money into the enterprise, the right to reasonable dividends on their capital. Finally we must devise some system by which the consumer shall get the benefit of all earnings of the business after reasonable dividends have been paid.

Various plans have been attempted in order to secure these results. The earliest attempts to regulate the operations of the company took the form of prescribing the maximum dividends which the companies should be allowed to declare, and at the same time prescribing the quality of the gas and the price at which the gas must be furnished. Any profits which should accrue after such dividends were earned should be applied to lowering the price of gas. The weak point in such a scheme is evident. After the maximum dividends are reached the company have no inducements to increase the efficiency of the works in any respect, since they cannot in any case profit by such improvements. In such cases a slothful management has nearly always come to the front. The maximum dividends were reached at a time when gas was still costly to manufacture, and as it made no difference to the company whether they made their profits on a large or small consumption, they remained by the small consumption and high prices. Of course in any such system, careful provisions had to be inserted regulating the increase of capital and providing for the fullest publicity of all accounts. This plan though often tried has not given satisfaction in any place where it has been adopted.

A second plan, sometimes incorporating the former and sometimes not, has been extensively tried on the continent. The gas company has been allowed to undertake its work agreeing to furnish a gas of a given quality at a certain price, in return for which it should be allowed to declare a dividend and accumulate a sinking fund which should replace the original capital within the period of the charter, at the end of which the works should be turned over to the city. This plan has also failed to give satisfaction. The experience of the city of Cologne which adopted this plan, or rather a modification of it, which allowed the city to purchase the works at the expiration of a fixed period, at a given valuation, may serve as a fair example of the experience of other cities which have tried similar plans. When the city in 1873 assumed the works it found them in a most dilapidated state, in spite of all attempts at supervision during the time in which the company operated themselves. The works had to be reconstructed entirely and new mains laid throughout. It is almost impossible for any external body to supervise the works, as it would take only a smaller force than that which is necessary to operate the works.

Another plan which has given by far the best satisfaction is one adopted within a few years in England and known as the sliding scale plan. Under this system the companies agree to furnish a gas of a given quality at a maximum price. They are allowed to declare a standard dividend. A maximum price is fixed for gas. For every reduction in the price they are allowed to declare a further dividend. Under this plan the interests of both parties lie along the same lines. If the company sees its way clear to improvements which will lower the cost of manufacturing gas considerably, it has a decided inducement to do so, as by this means it is also allowed to declare a higher dividend. In London, for example, the Gas Light and Coke Company is allowed on its ordinary stock a standard dividend of 10 per cent. while its maximum price for gas is 3s. 9d. per thousand feet. For

every reduction of 4d. in the price they are allowed to declare an additional dividend of one per cent. Thus when they reduced to 3s. 5d. they were allowed to declare a dividend of eleven per cent. In 1884 the price was reduced to 3s. and the dividend was raised to 12 per cent. This plan is by far the most satisfactory one thus far adopted. It pre-supposes, as is very evident, the strictest supervision of the company by the government and careful provisions in reference to capitalization. In London, for example, the accounts of the companies are examined regularly by the city auditor and the consent of the government must be obtained in order to increase the capital.

None of these plans have proved satisfactory. The other alternative, that of government management and ownership, is therefore being accepted on a large and increasing scale even by those who have the most efficient machinery for exercising the necessary supervision. Scarcely a week, and certainly not a month, passes in England which does not witness the transfer of some gas enterprise from private to public management.

The argument in the early part of the paper in regard to public ownership turned almost exclusively on the financial point. The final and decisive argument, however, in favor of city ownership and management is the fact that the control of a necessary of life should not be handed over to a private company, however carefully its conduct may be watched. Cases are arising constantly when the legitimate interests of the private corporation will lie directly in the way of the public interest. Take, for example, the case of a considerable lowering of the price of gas to the consumer, which is often imperatively called for by the industrial and social interests of the city. If the enterprise is in private hands it is very likely to be very conservative in the policy of lowering prices with the hope that an increased consumption will more than make up for the loss. A city, on the contrary, may often find it greatly for its advantage to sacrifice for a time the profits for the sake of furthering the consumption of an

article which may perform such valuable services to the community in the various ways indicated above. As a matter of fact, the demonstration of how rapidly the consumption of gas may follow a reduction in the price of gas was reserved for government undertakings. The municipal corporations of England first taught the private companies the possibilities for the stockholder himself which lay in a lower price. They are the only corporations which find it for their interest to continually lower the price until it approximates more nearly the cost of production and to rely on large sales at low prices instead of on small sales at high prices.

We have already made great mistakes in allowing the policy of competition to force an amount of capital into these enterprises which make cheap gas almost impossible. We should make quite as great a one if we allow private companies to make this capital the excuse of plundering the consumer for the next twenty-five or fifty years by exacting prices which will pay enormous dividends on this capital.

In closing, let us summarize briefly the conclusions which we have reached.

I.—A good supply of pure and rich gas at low prices has become an absolute necessity of life in our modern city. It is necessary to the comfort of the home as well as to the efficiency of industry and trade.

II.—The technical and administrative conditions of the manufacture and distribution of gas, make the business a practical monopoly.

III.—We must choose, then, between a monopoly managed by the public in the interests of the public, and a monopoly in the hands of private parties.

IV.—No one proposes to hand over the business to a private monopoly without at least an attempt to regulate it in the interest of the public. All attempts so far made in any civilized country to regulate such private monopolies effectively have failed most conspicuously. If sufficient inducements are offered to secure active and progressive manage-

ment, the interests of consumers are uniformly sacrificed. If such inducements are not offered the whole business must of course be a complete failure.

V.—The common argument against the public management that it is necessarily more expensive than private management, is not well grounded, either in reason or fact, since a careful analysis of the case shows that there are some reasons why public companies can, as a rule, manufacture more cheaply than private companies, and a study of statistics shows that public companies where properly organized are able to show at least as good results, so far as cheapness and quality of manufacture are concerned, as the private companies.

VI.—The argument that if private works manufacture the gas they will not take part in politics in such a way as to bring about the results inevitably connected with public works, is not well taken. The private companies do not go out of politics, on the contrary they devote the whole of their ability to the attempt to avoid the restrictions and regulations which the public must in pure self-defense impose. They go into the councils and into the legislatures and buy up councilmen and legislators in the most shameless way. They bribe the inspecting officers, and do not stop at anything which seems to promise any assistance. On the other hand it is at least possible to get rid of the worst evils of public management by a properly organized system of civil service. At the worst, then, the difference is that under private ownership we are subject to a master whose rule we cannot shake off, while we may at any time drive politics from public works.

VII.—This action in politics is very evident by its fruits, since no country in the world has been able to secure effective supervision, which has not at the same time been fully able to manage the works through the government. It is idle to expect to be able to keep the companies within bounds.

VIII.—The business of furnishing a necessary of life which can be carried on only in the form of a monopoly, is never

safe in the hands of a private company. If public management is really inefficient and corrupt, the only way out of the difficulty is to improve the public service. To hand over the business to private management is simply to make sure of retaining all the abuses which inhere in the public service, with no hope whatever that any of the advantages which may flow from efficient public management shall ever be attained.

IX.—To continue the farce of allowing competition to regulate prices simply means that good and cheap gas is forever impossible. It will still give to unscrupulous speculators an opportunity to bleed legitimate enterprise to such an extent that the latter will become impossible, and the whole business will become so uncertain that only speculators can go into it, which means, of course, high prices, great profits, great losses, and merciless exploitation of consumers.

To grant monopoly to private companies means either effective or ineffective regulation. If the former, we shall have high profits, enormous over-capitalization, gigantic stock watering, poor gas, and high prices, with all that such a state of things implies. If the latter, we shall have, at the very best, slothful management, and a consulting of private interests when they conflict with public, which is none the less injurious because it is from the individual point of view perfectly legitimate.

X.—The conclusion of the whole matter is that the best form of management of the gas industry is the public one, and that, if for any reason it is not resorted to, the community is constantly suffering a serious loss and that, too, no matter how successful the business may seem to be in private hands.

In corroboration of this view I may quote the testimony of one of the most distinguished of American gas engineers, Mr. Greenough, from a speech of his before the New England Association of Gas Engineers, February 18, 1885.

"If any city in this country (as some municipalities have done) should see fit to purchase the rights and property of

existent gas corporations, and would operate them with even a moderate degree of regard for the public good, there is no doubt that in many cases it might prove of public advantage. The most entire publicity would, of course, be given to the business; the public could, at all events, fix its own price, and the city could borrow money at lower rates than any private citizen would be content to risk his capital for."

Note to p. 53.—Dr. Edward W. Bemis gives the following quotation from a private letter from a prominent official in Wheeling, W. Va., in regard to the management of the city works in that place (see *Independent*, April 15, 1886):

"We furnish gas to consumers at ninety cents per thousand feet, and at this price realize a handsome marginal profit. Politics have never entered into the management of the works, although owned and operated by the city. This business has always been run on sound business principles." He then goes on to express some fears as to the future, which may or may not be well grounded.

COÖPERATION

IN

A WESTERN CITY.